CUTTING PLOTTER

CE3000-40/60/120/120AP/CE2800/SSK/CE3500
CE3000-40Mk2/60Mk2/120Mk2
CE3000-40CRP (Craft ROBO Pro)

SERVICE MANUAL

GRAPHTEC CORPORATION

CE3000-UM-251-15-9370

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1. INTRODUCTION

1.1 Main Specifications

CE3000-40/60/120/40Mk2/60Mk2/120Mk2/40CRP

Item	CE3000-40/Mk2/CRP	CE3000-60/Mk2	CE3000-120/Mk2
CPU	32-bit CPU		
Configuration	Grit rolling		
Drive system	Stepping	Digital servo	
Maximum cutting area	375 mm x 50 m	603 mm x 50 m	1213 mm x 50 m
Range of guaranteed precision	356 mm x 2 m*1	584 mm x 5 m*1	1194 mm x 5 m*1
Compatible media widths	Minimum: 50 mm Maximum: 484 mm (19 inches)	Minimum: 50 mm Maximum: 712 mm (28 inches)	Minimum: 85 mm Maximum: 1346 mm (52 inches)
Maximum media thickness	10 mil		
Maximum cutting speed	40 cm/s (in all directions)	60 cm/s (in all directions)	100 cm/s (45° direction)
Maximum acceleration	5 m/s^2 (45° direction)	21.2 m/s^2 (45° direction)	14.1 m/s^2 (45° direction)
Specifiable cutting speeds	1–10, 15, 20, 25, 30, 35, 40 cm/s	1–10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 cm/s	1–10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, * cm/s
Cutting force	20 gf to 300 gf (31 levels)		20 gf to 450 gf (38 levels)
Minimum character size	Approximately 5 mm for alphanumeric characters (varies depending on the medium, font, etc.)		
Mechanical resolution	0.0125 mm	0.005 mm	
Programmable resolution	GP-GL: 0.1/0.05/0.025/0.01 mm; HP-GL™ *2: 0.025 mm		
Repeatability precision	0.1 mm or less per 2 m*1		
No. of pens mountable	1 pen		
Compatible cutter type	Supersteel cutter blades		
Compatible pen type	Water-based fiber-tip pens		
Compatible cutting film	Marking film (PVC, fluorescent, or reflective film) up to 0.25 mm in thickness (excluding high-luminosity reflective film)		
Interfaces	RS-232C/Centronics/USB		
Buffer capacity	2 MB		
Command modes	GP-GL, HP-GL™ *2 (selected on the control panel)		
Display panel	Liquid crystal display (16 characters x 1 row)		
Rated power supply	100 to 120 V AC, 200 to 240 V AC, 50/60 Hz		
Power consumption	70 VA		100 VA
Operating environment	10°C to 35°C, 35% to 75% RH		
Conditions for guaranteed precision	16°C to 32°C, 35% to 70% RH		
External dimensions (W x D x H)	Approx. 623 x 285 x 223 mm	Approx. 851 x 285 x 223 mm	Approx. 1,487 x 656 x 1188 mm*3
Weight	9.4 kg	11.2 kg	39.1 kg*3

*1: Varies depending on the type of Graphtec-authorized film and the cutting conditions

*2: HP-GL™ is a registered trademark of Hewlett-Packard Company.

*3: Including the stand

CE3000-120AP

Item	CE3000-120AP
CPU	32-bit CPU
Configuration	Grit rolling
Drive system	Digital servo
Maximum cutting area	1164 mm x 50 m (when the 3-inch core is used)
Maximum guaranteed cutting area	1194 mm x 3 m (when the 3-inch core is used)*1
Compatible media widths	160 to 270, 300 to 400, 440 to 540, 580 to 680, 710 to 810, 850 to 950, 990 to 1090, 1120 to 1220 mm (the effective drawing area is the maximum obtainable area for the corresponding medium width)
Compatible maximum media width	3-inch core: 1220 mm 2-inch core: 1180 mm
Maximum loadable media length	100 m/roll
Media types	Fine quality paper for apparel patterns (64 to 130 g/m^2) Roll media diameter: 2-inch, 3-inch
Maximum cutting speed	60 cm/s
Maximum acceleration	13.9 m/s^2 (45° direction)
Specifiable cutting speeds	1 to 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 cm/s
Cutting force	20 to 300 gf (31 levels)
Mechanical resolution	0.005 mm
Programmable resolution	GP-GL: 0.1/0.5/0.025/0.01 mm HP-GL™*2: 0.025 mm
Repeatability precision	Within 0.1 mm/2m*3
No. of pens mountable	2
Compatible cutter blade type	Supersteel
Compatible pen type	Water-based fiber-tip pens
Interfaces	RS-232C/Centronics/USB
Buffer capacity	2 MB
Command modes	GP-GL, HP-GL™*2 (selected on the control panel)
Display panel	Liquid crystal display (16 characters x 1 row)
Rated power supply	100 to 120 V AC, 200 to 240 V AC, 50/60 Hz
Power consumption	100 VA
Operating environment	10°C to 35°C, 35% to 75% RH
Conditions for guaranteed precision	16°C to 32°C, 35% to 70% RH
External dimensions (W x D x H)	Approx. 1,487 x 656 x 1189 mm*4
Weight	43 kg*4

*1: Depending on the shape of the roll stoppers, the width will be 1140 mm when a 2-inch core is used.

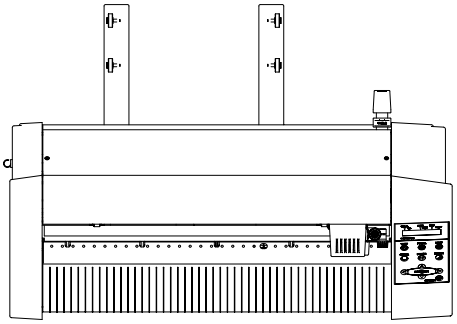
*2: HP-GL™ is a registered trademark of Hewlett-Packard Company.

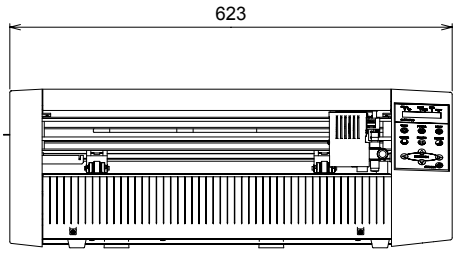
*3: When using Graphtec-specified media and cutting conditions.

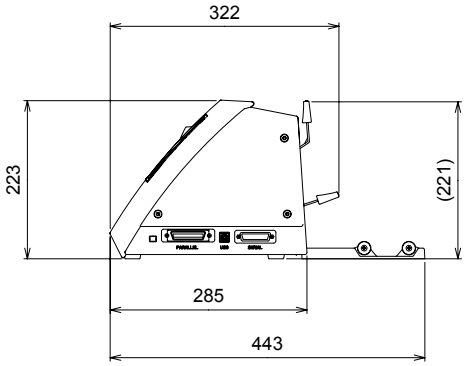
*4: Includes the stand and basket.

1.2 External Dimensions

CE3000-40/Mk2/CRP



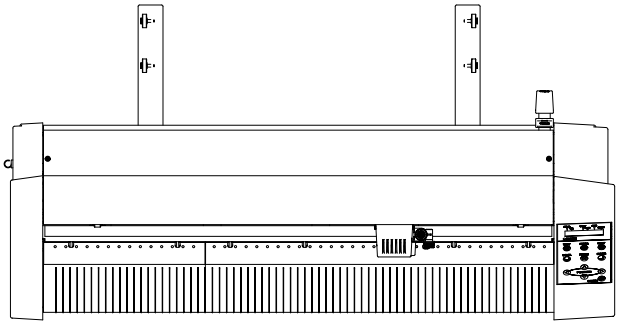


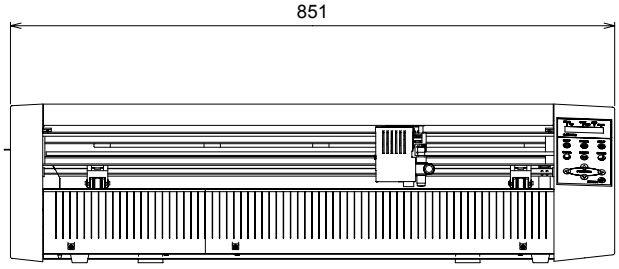


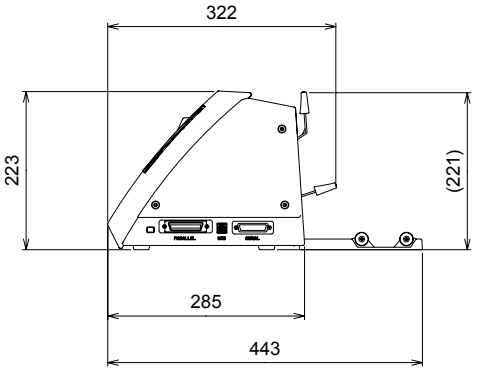
Units: mm

Dimensional accuracy: ±5 mm

CE3000-60/Mk2



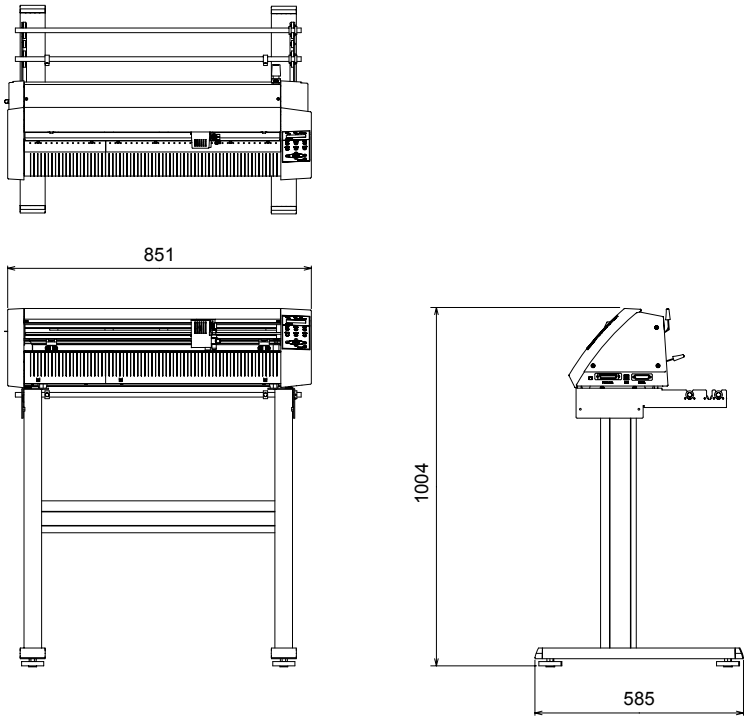




Units: mm

Dimensional accuracy: ±5 mm

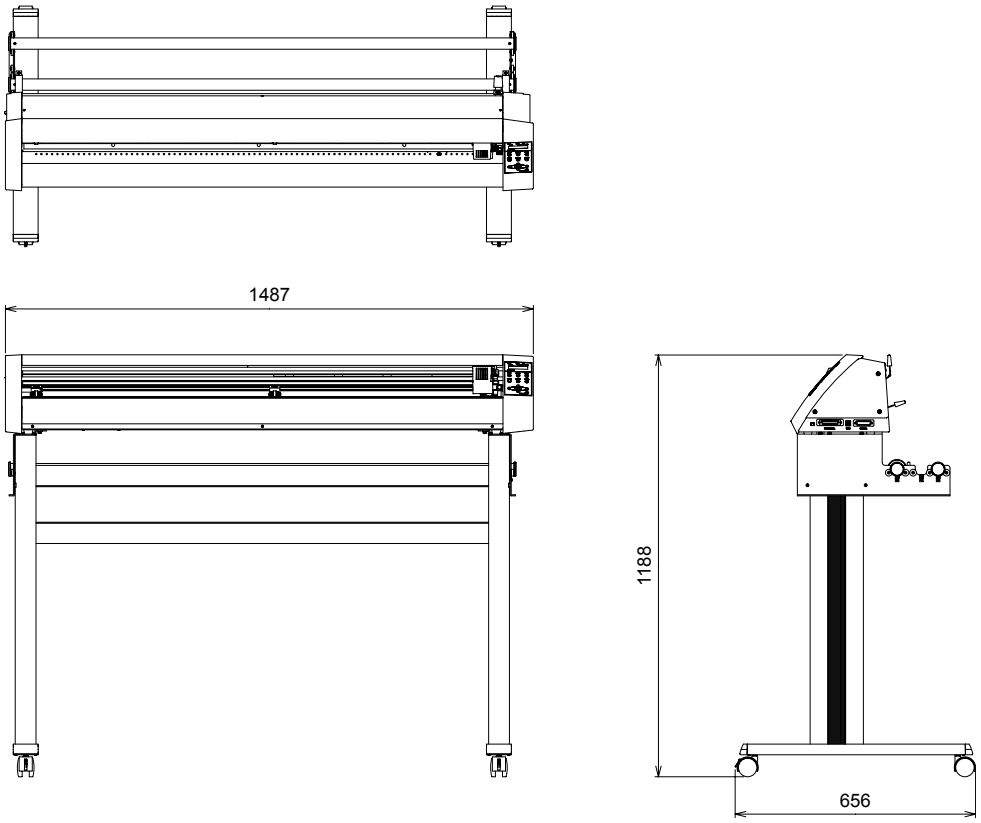
CE3000-60/Mk2 (When mounted on optional stand)



Units: mm

Dimensional accuracy: ±5 mm

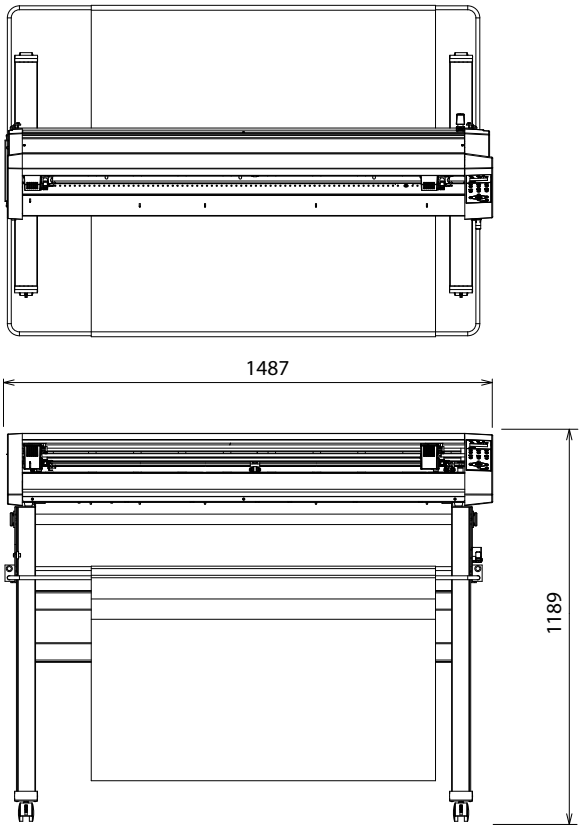
CE3000-120/Mk2

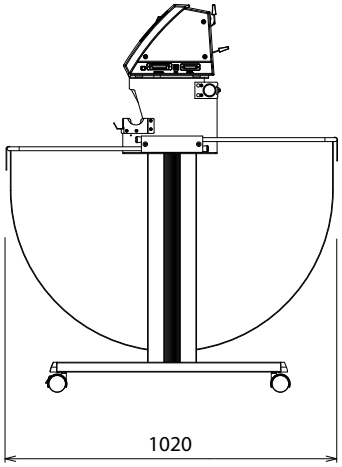


Units: mm

Dimensional accuracy: ±5 mm

CE3000-120AP





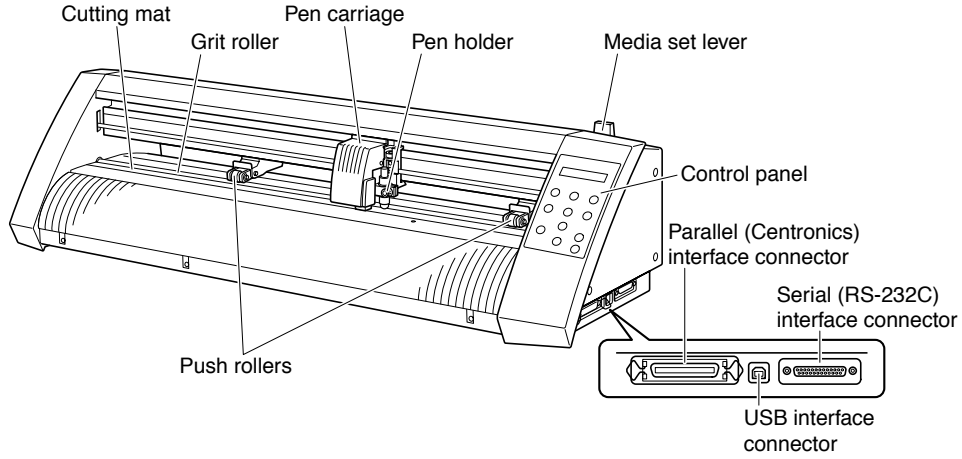
Units: mm

Dimensional accuracy: ±5 mm

2. PARTS NAMES and FUNCTIONS

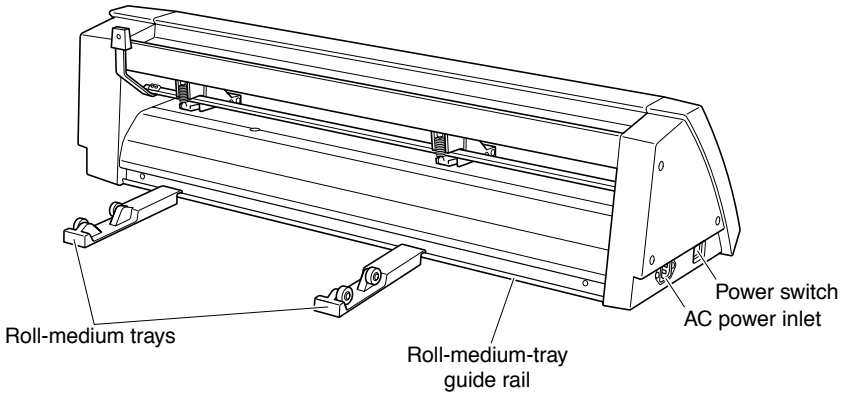
2.1 Parts Names and Functions

Front View (CE3000-40/60/40Mk2/60Mk2/40CRP)



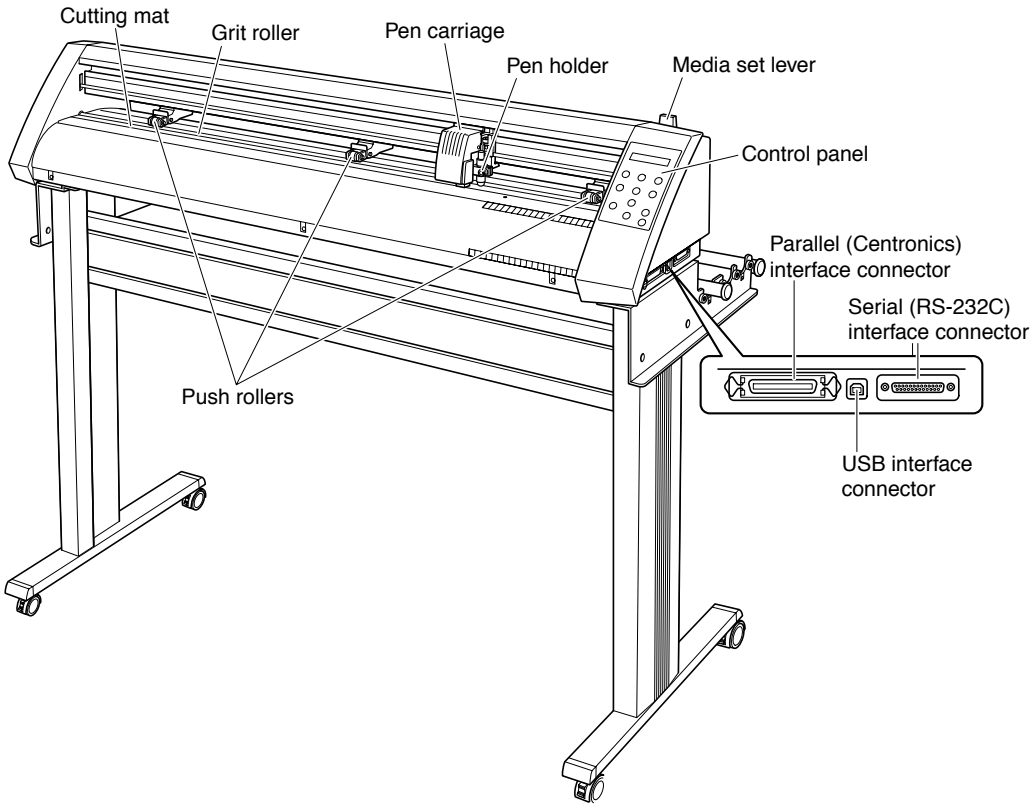
Cutting mat	: Cutting or plotting is performed on this mat.
Grit roller	: Feeds the medium backward or forward
Push rollers	: Pushes the medium against the grit rollers
Pen carriage	: Moves the cutter pen to the left and right
Pen holder	: Holds the cutter pen and moves it up and down
Media set lever	: Raises or lowers the push rollers during loading of a medium
Control panel	: Used to operate the cutting plotter and set functions
Parallel (Centronics) interface connector	: Used to connect a Centronics-compatible parallel interface cable
USB interface connector	: Used to connect a USB cable
Serial (RS-232C) interface connector	: Used to connect an RS-232C serial interface cable

Rear View (CE3000-40/60)



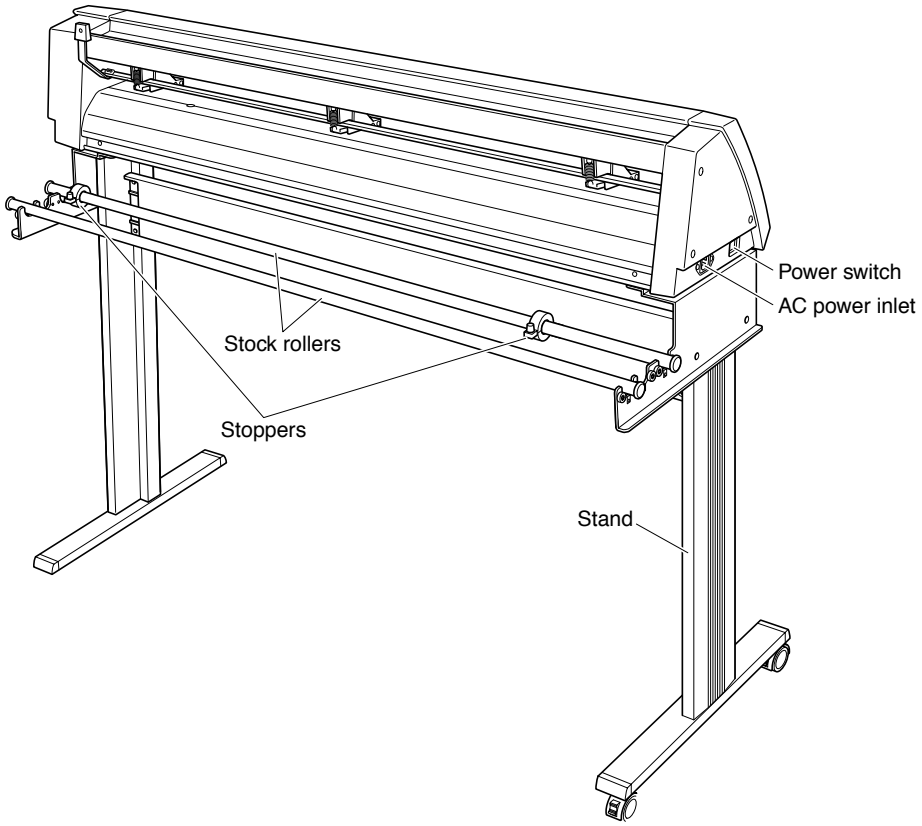
Roll-medium trays	: Holds a roll medium
Roll-medium-tray guide rail	: Used to mount the roll-medium trays
AC power inlet	: Connects the power cord to the cutting plotter
Power switch	: Turns the power supply to the cutting plotter on or off

Front View (CE3000-120/Mk2)



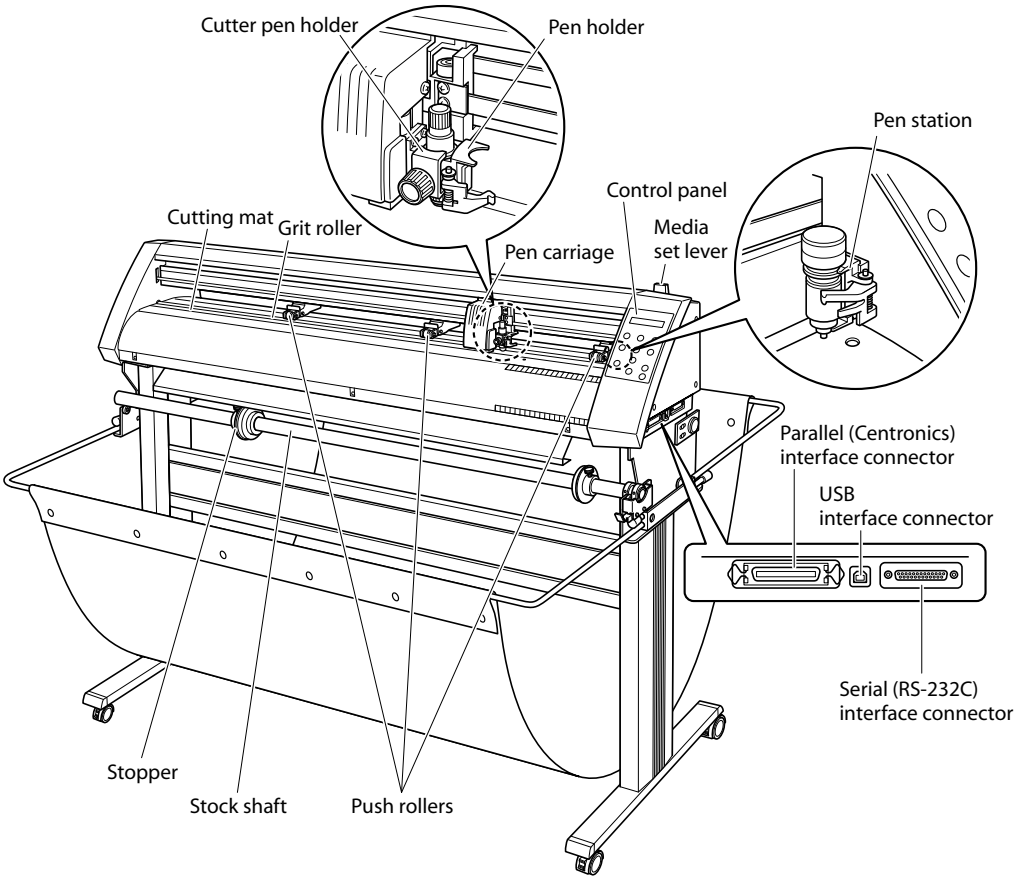
Cutting mat	: Cutting or plotting is performed on this mat.
Grit roller	: Feeds the medium backward or forward
Push rollers	: Pushes the medium against the grit rollers
Pen carriage	: Moves the cutter pen to the left and right
Pen holder	: Holds the cutter pen and moves it up and down
Media set lever	: Raises or lowers the push rollers during loading of a medium
Control panel	: Used to operate the cutting plotter and set functions
Parallel (Centronics) interface connector	: Used to connect a Centronics-compatible parallel interface cable
USB interface connector	: Used to connect a USB cable
Serial (RS-232C) interface connector	: Used to connect an RS-232C serial interface cable

Rear View (CE3000-120/Mk2)



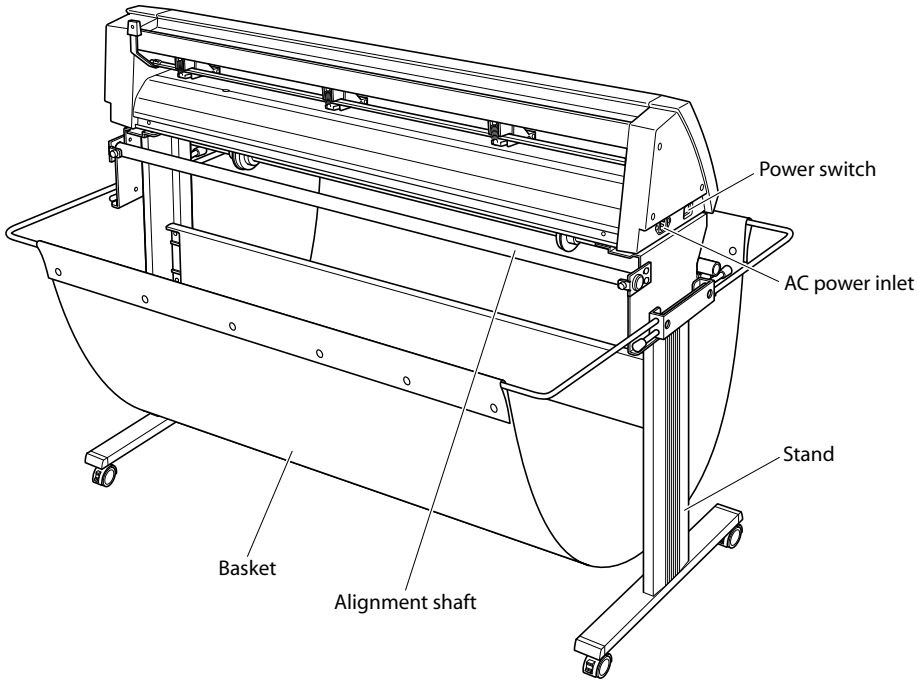
AC power inlet	: Connects the power cord to the cutting plotter
Power switch	: Turns the power supply to the cutting plotter on or off
Stand	: Supports the cutting-plotter unit
Stock rollers	: Holds the roll media
Stoppers	: Used to determine the position of the roll media loaded

Front View (CE3000-120AP)



Cutting mat	: Cutting or plotting is performed on this mat.
Grit roller	: Feeds the medium backward or forward.
Push rollers	: Pushes the medium against the grit rollers.
Pen carriage	: Moves the cutter pen to the left and right.
Cutter pen holder	: Hold the cutter pen and moves it up and down.
Pen holder	: Holds the pen and moves it up and down.
Pen station	: Used to mount the pen before it is used.
Media set lever	: Raises or lowers the push rollers during loading of a medium.
Control panel	: Used to operate the cutting plotter and set functions.
Parallel (Centronics) interface connector	: Used to connect a Centronics-compatible parallel interface cable.
USB interface connector	: Used to connect a USB cable.
Serial (RS-232C) interface connector	: Used to connect an RS-232C serial interface cable.
Stock shaft	: Used to load roll media.
Stoppers	: Used to hold a roll medium in place (left and right, one each).

Rear View (CE3000-120AP)



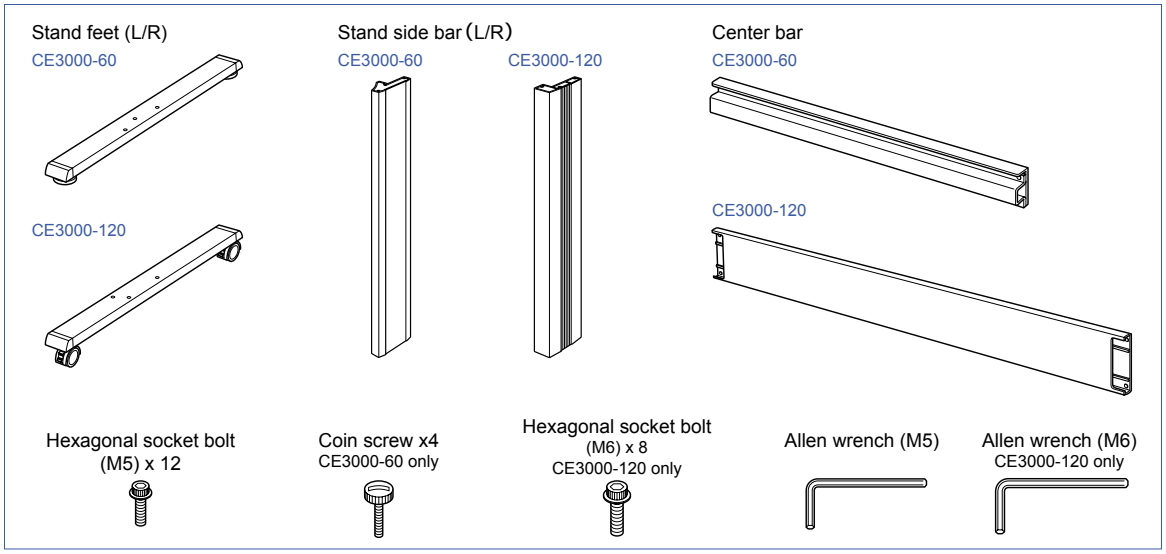
AC power inlet	: Connects the power cord to the cutting plotter.
Power switch	: Turns the power supply to the cutting plotter on or off.
Stand	: Supports the cutting-plotter unit.
Alignment shaft	: Used when loading roll media.
Basket	: Used to catch media after it has been cut.

2.2 Assembling the Stand

CE3000-120:Standard / CE3000-60: Optional

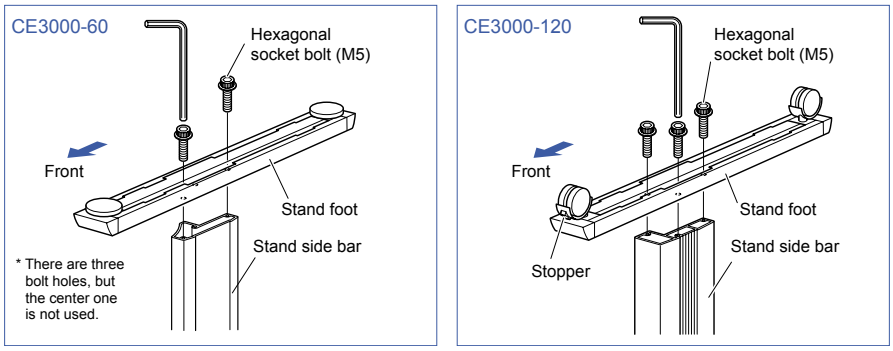
Stand Construction

The stand is made up of the following parts.

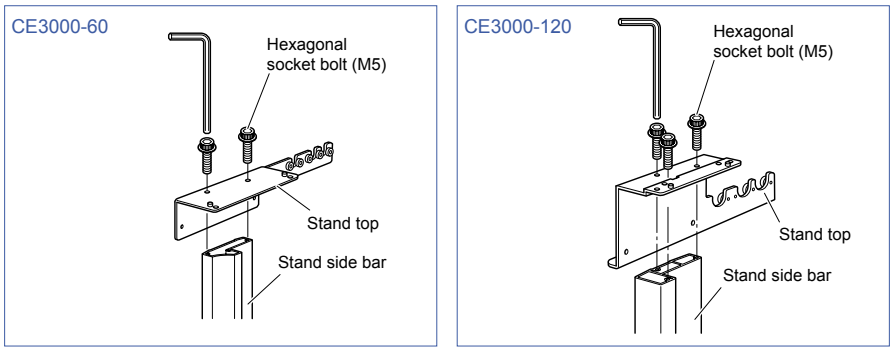


Stand Assembly Instructions

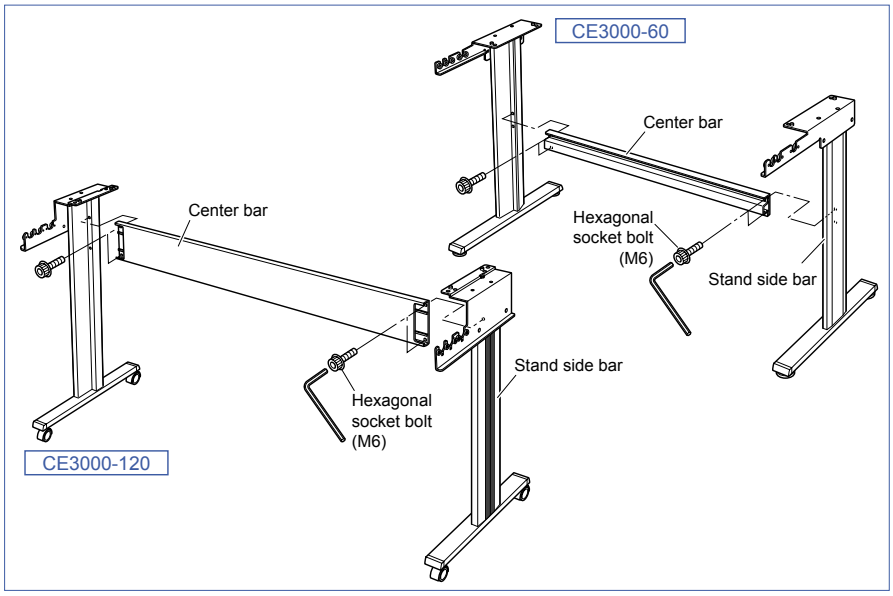
(1) Fasten the stand feet (L/R) to the side bars (L/R) with the hexagonal socket bolts (M5), using the Allen wrench.



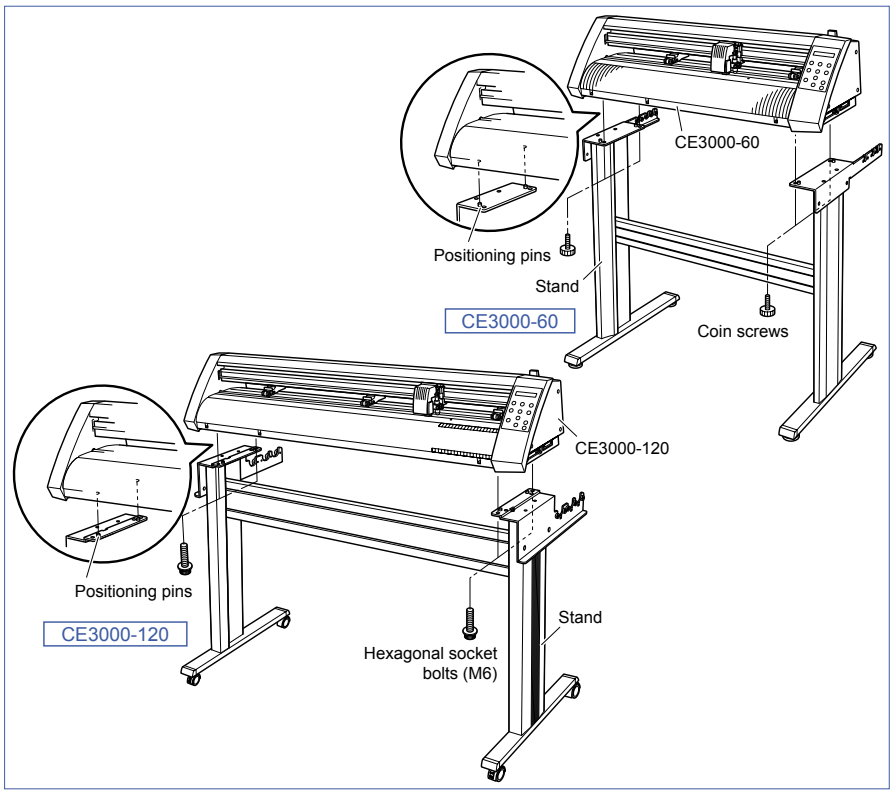
(2) Fasten the stand tops (L/R) to the stand side bars (L/R) with the hexagonal socket bolts (M5), using the Allen wrench.



(3) Loosely fasten the stand side bars (L/R) to the center bar with the hexagonal socket bolts (CE3000-60: M5, CE3000-120: M6), using the Allen wrench.



(4) Mount the CE3000 cutting plotter on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter. Fasten using the four coin screws or hexagonal socket bolts (M6).



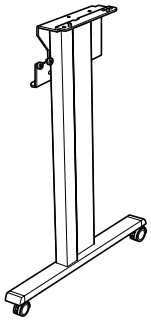
(5) Tighten the hexagonal scoket bolts loosely fastened in step 3.

CE3000-120AP:Standard

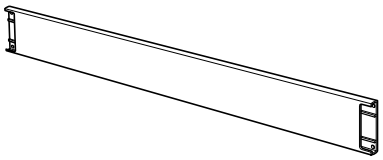
Stand Construction

The stand is made up of the following parts.

Stand side bar (L/R)



Center bar

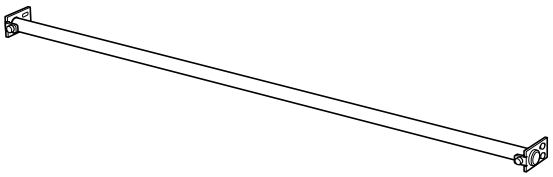


Hexagonal socket bolt (M6) x 8

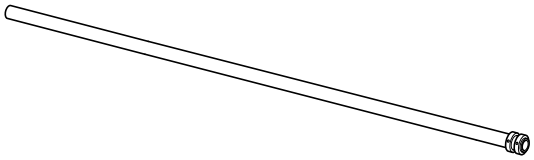
Center bar

Allen wrench (M6)

Alignment shaft



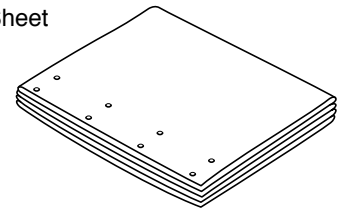
Stock shaft



Basket Construction

Sheet support pipe x 2

Sheet



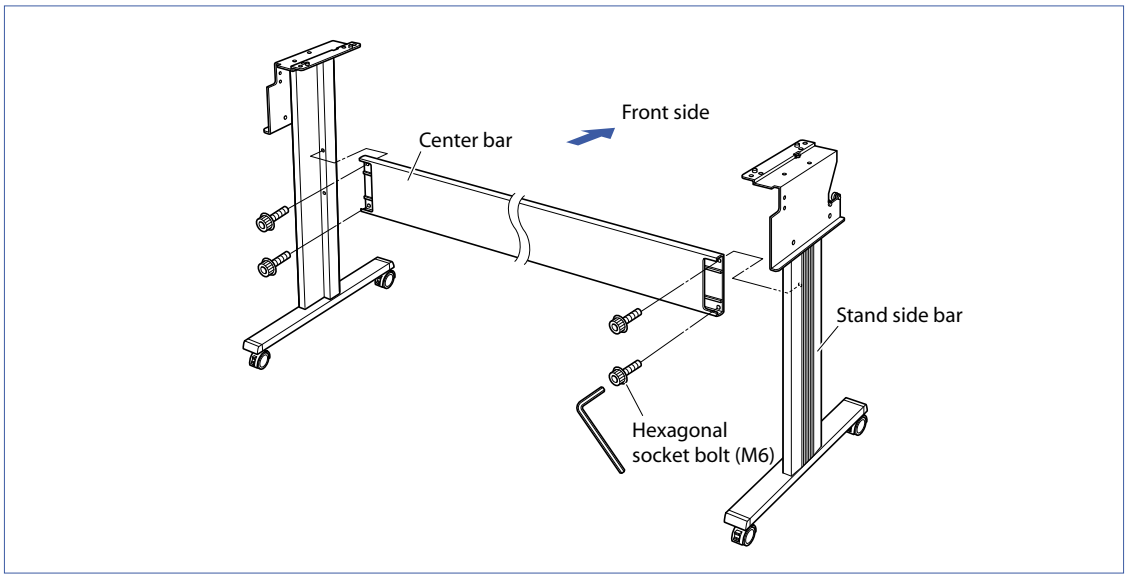
Sheet support pipe bracket x 2

Rubber cap x 4

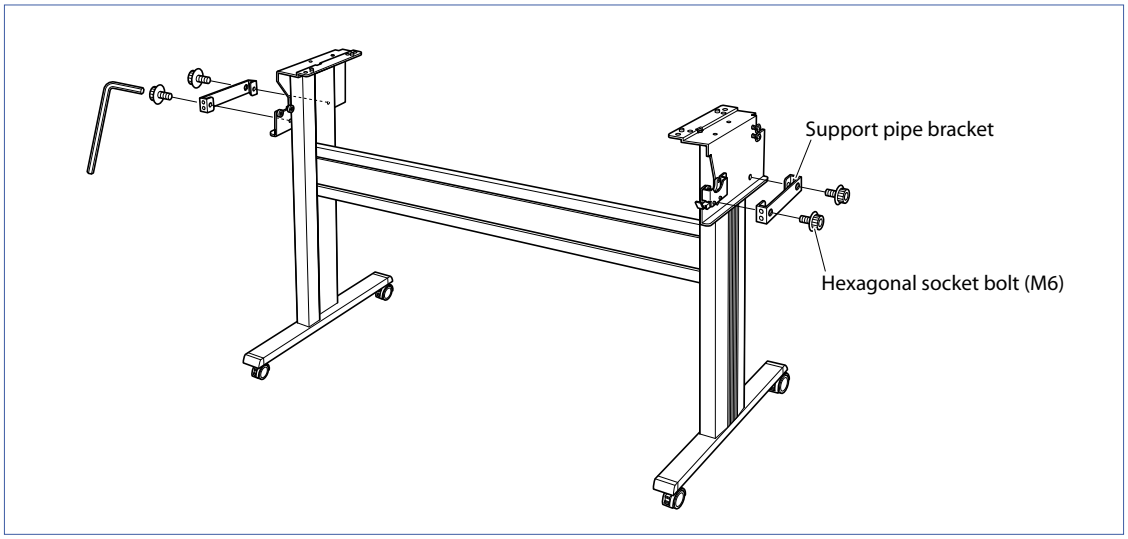
Hexagonal socket bolt (M6) x 4

Stand Assembly Instructions

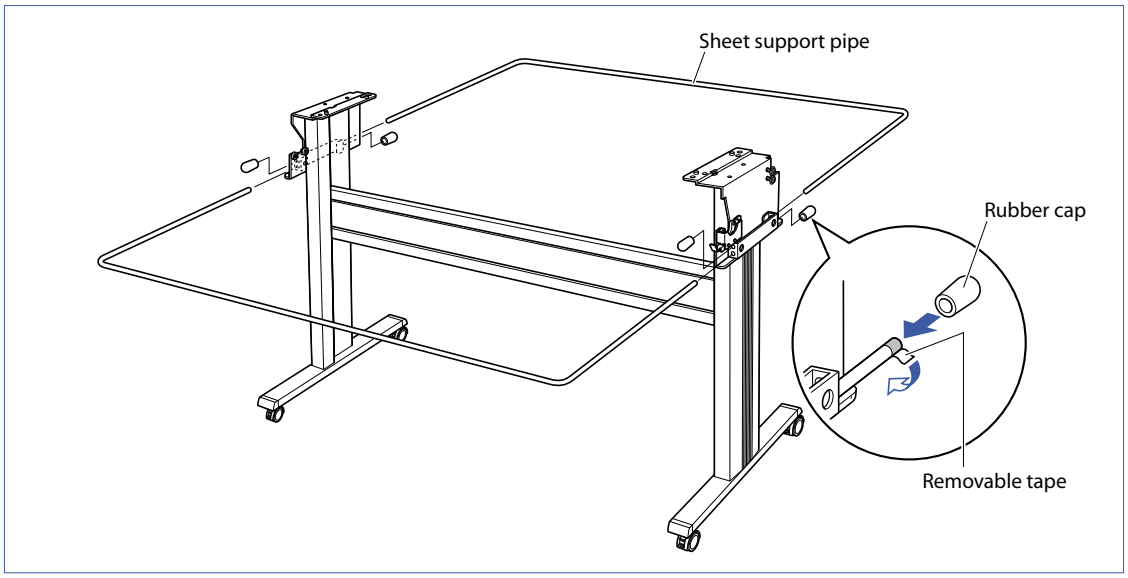
(1) Fasten the center bar to the stand side bars (L/R) temporarily with the hexagonal socket bolts (M6), using the Allen wrench.



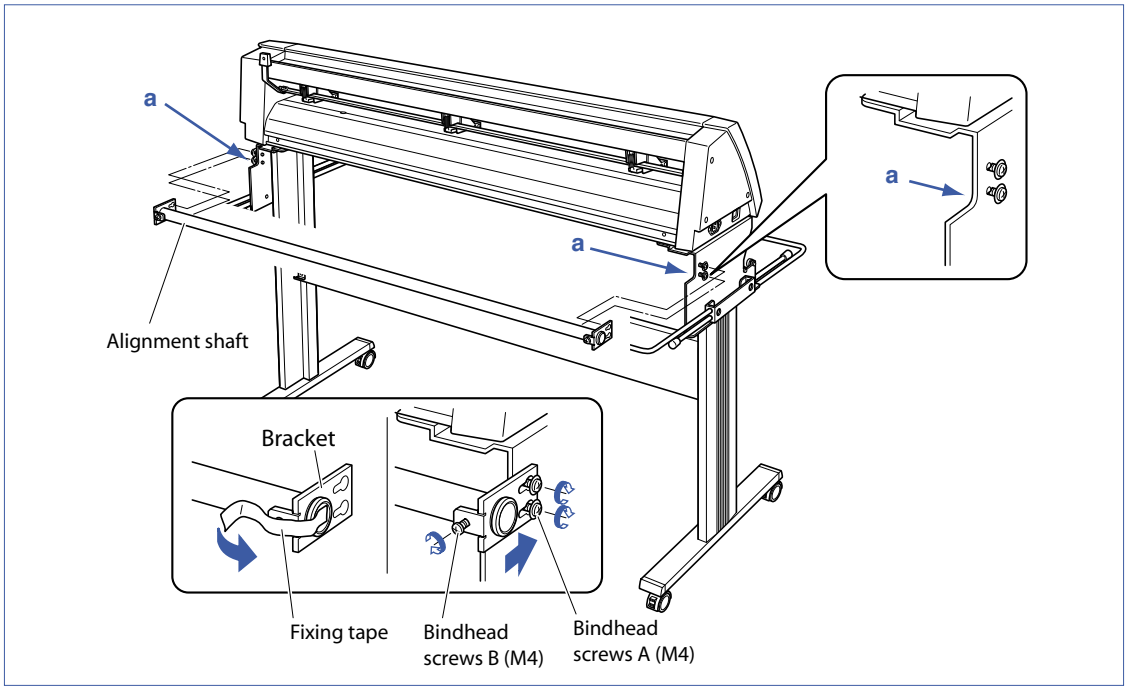
(2) Fasten the sheet support pipe brackets to the stand tops with the hexagonal socket bolts (M6).



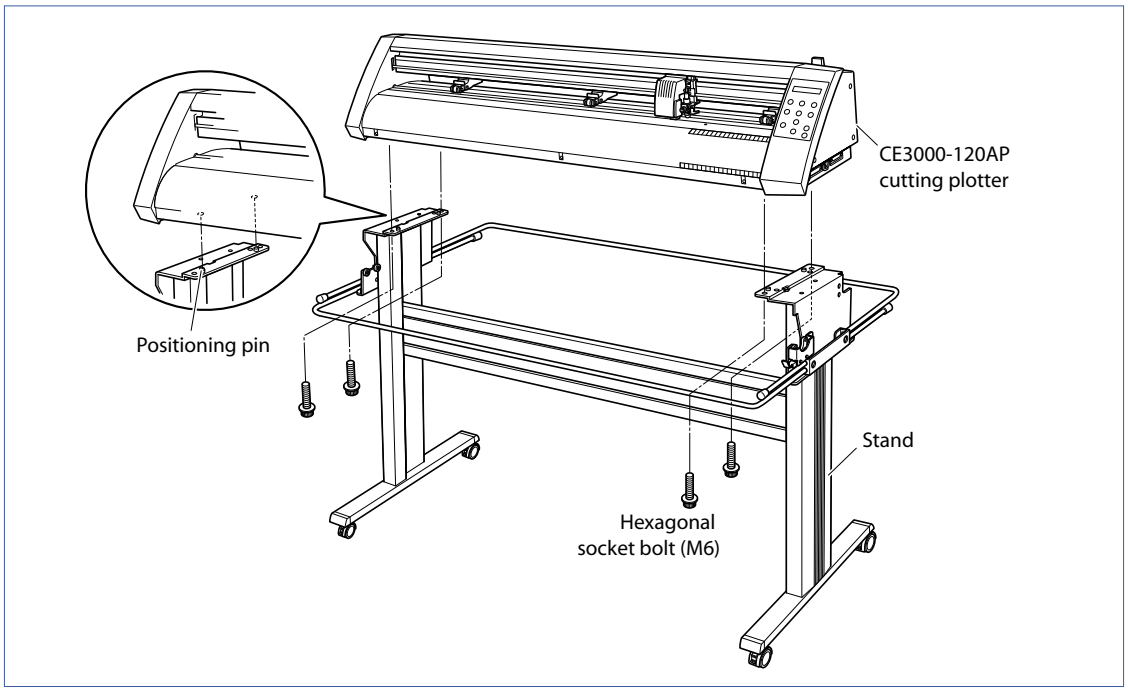
(3) Insert the sheet support pipes into the sheet support pipe brackets. Use the lower holes for the pipe that will be at the front of the cutting plotter, and the upper holes for the pipe that will be at the rear. Remove the tape from the ends of the pipes to expose the adhesive, and then fit the rubber caps on firmly.



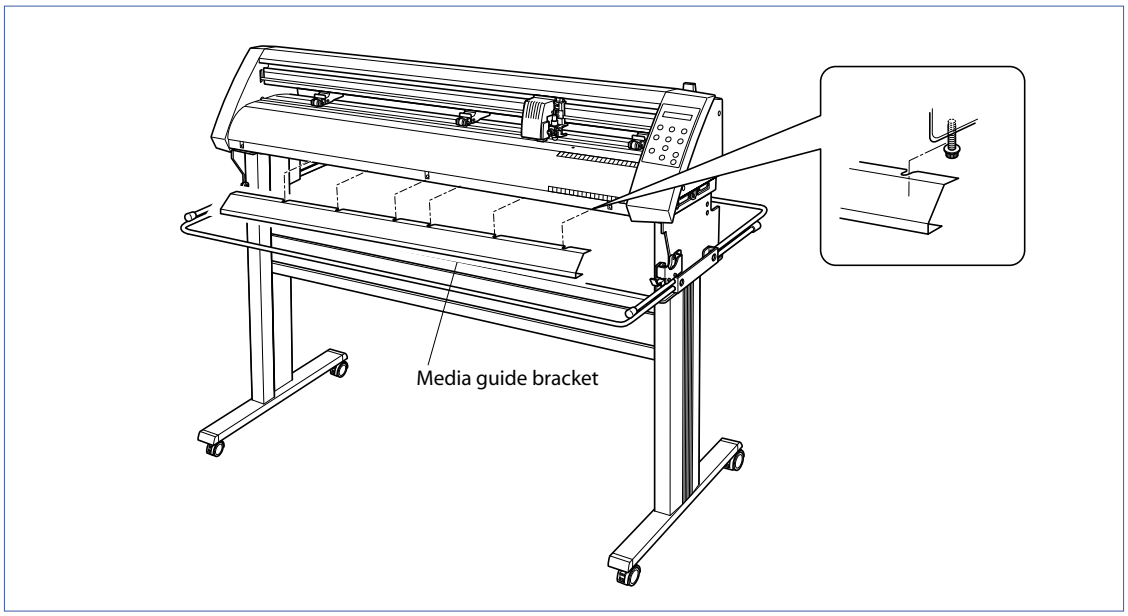
(4) Attach the alignment shaft to the top of the stand. Loosen the attached bindhead screws A (M4) two or three turns, and then insert the brackets on the end of the shaft using the elongated screw holes. Tighten the screws to hold the brackets in place. Push the shaft in until it contacts the curved area indicated by “a” in the figure below, and then tighten the A (M4) bindhead screws.
When the shaft has been attached, tighten the bindhead screws B (M4), and check that the shaft does not rotate. The bindhead screws B are screws to prevent the shaft from rotating. Position the shaft as desired (check both the rotation direction and the horizontal direction) and then tighten the screws.



(5) Mount the CE3000-120AP on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter and then fasten with the four hexagonal bolts (M6). Make sure that the casters with the stoppers are at the front.

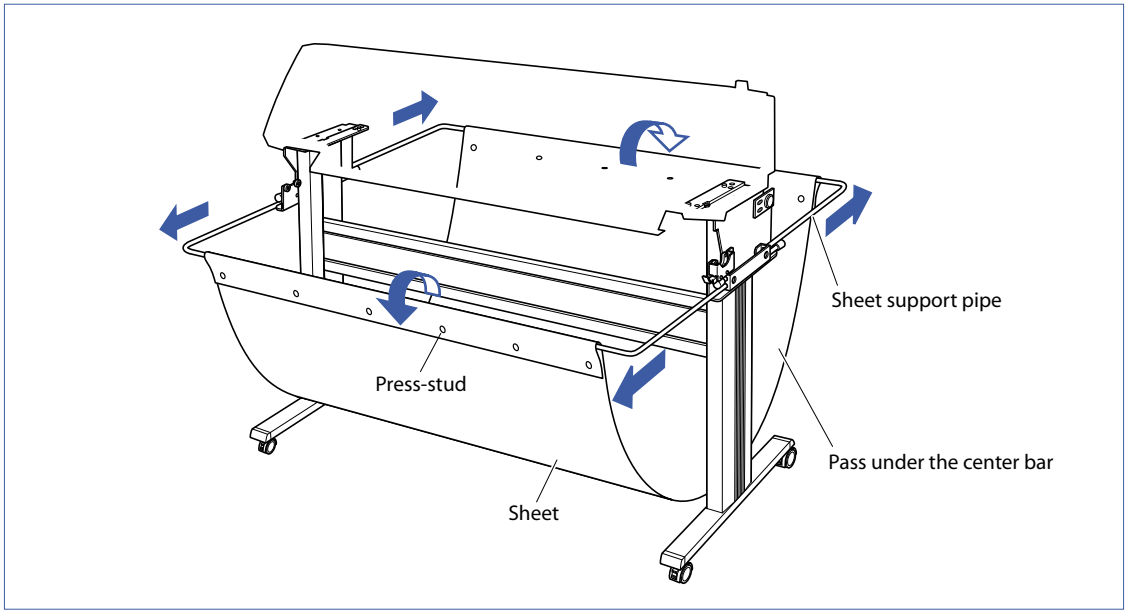


(6) Attach the media guide bracket to the underside of the front panel. Loosen the six bindhead screws (M3) two or three turns, and then slot the bracket in. Tighten the screws to hold the bracket in place.

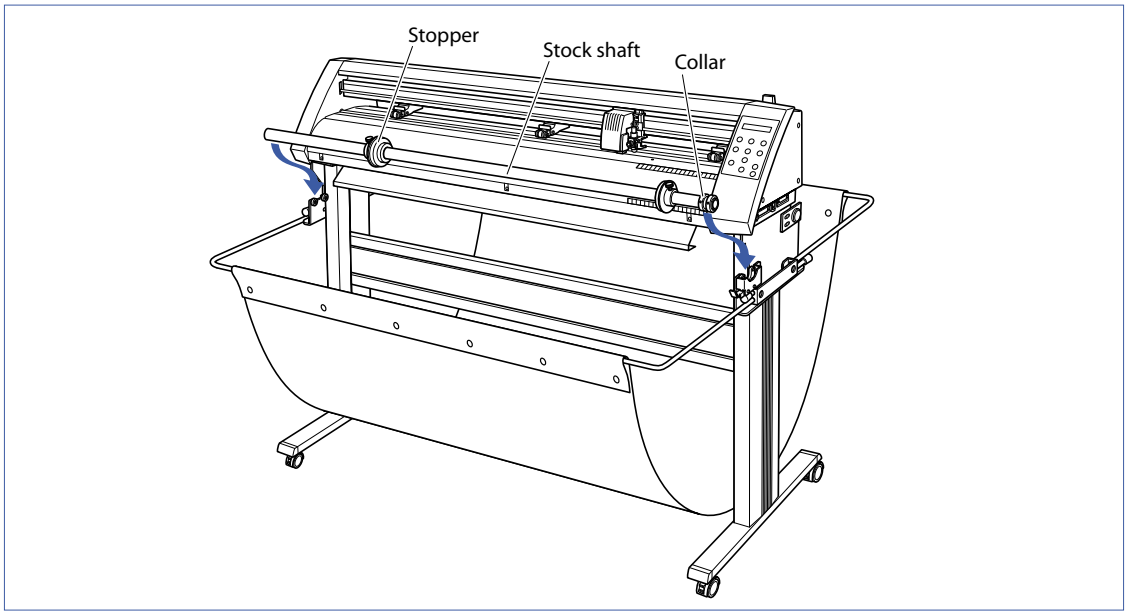


(7) Tighten all the hexagonal bolts that were temporarily fastened in step 1.

(8) Pull out the sheet support pipes, and attach the sheet to them. Pass the sheet under the center bar, and fasten the ends to the support pipes using the press-studs.



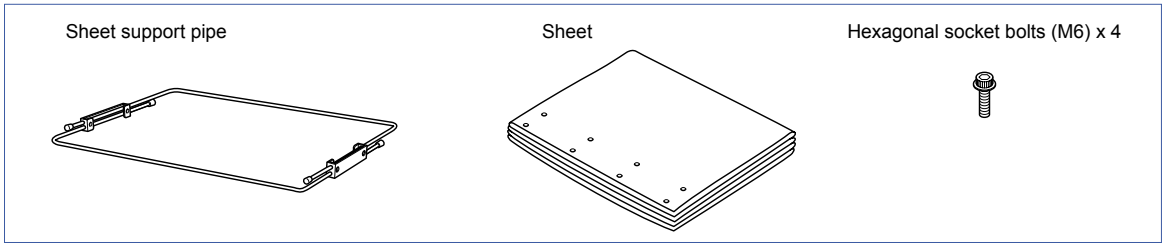
(9) Attach the stoppers (L/R) to the stock shaft and then attach the shaft to the top of the stand.



2.3 Attaching the Basket (CE3000-60/120: Optional)

Basket Construction

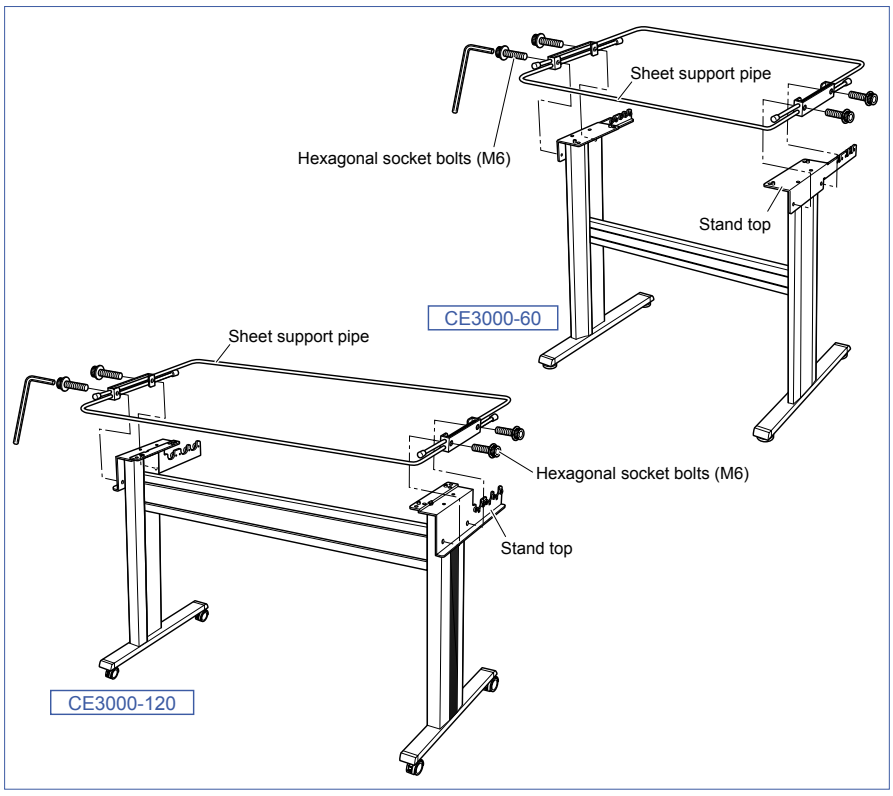
The basket is made up of the following parts.



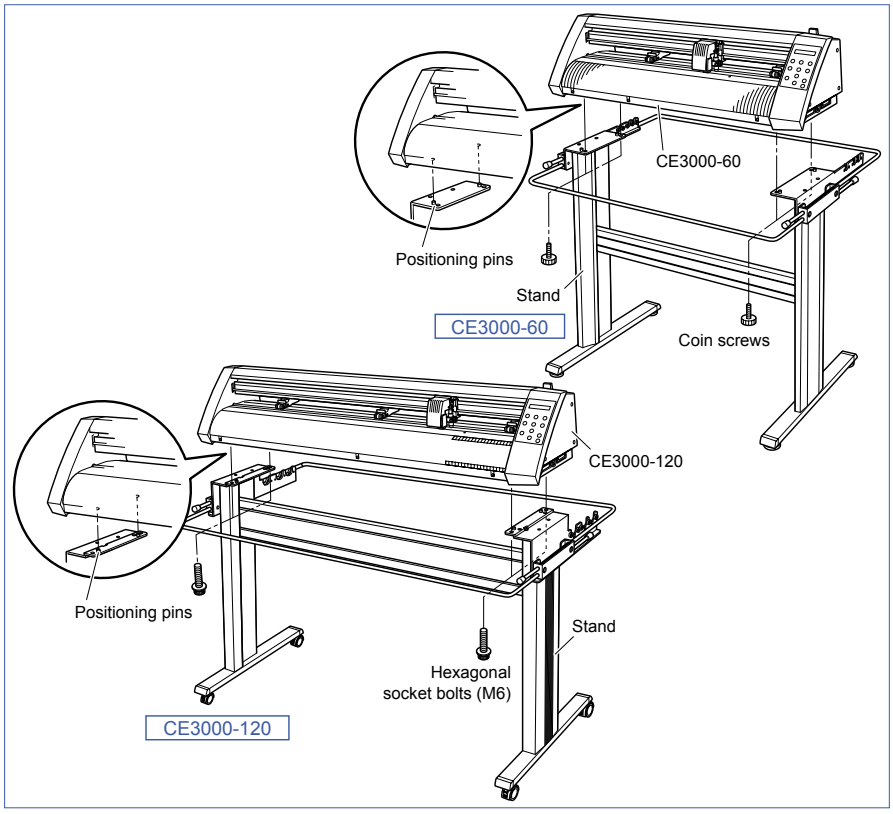
Basket Assembly Instructions

(1) Detach the four coin screws or hexagonal socket bolts (M6), and separate the cutting plotter from the stand.

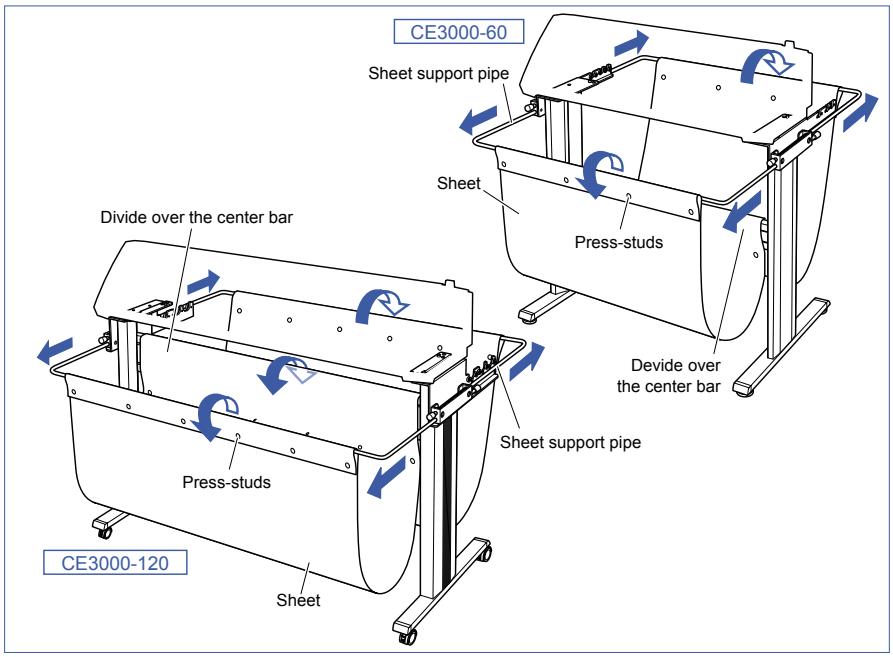
(2) Attach the sheet support pipe to the stand tops, and fasten using the hexagonal socket bolts.



(3) Mount the CE3000 cutting plotter on the stand by inserting the positioning pins on the stand into the positioning holes on the underside of the cutting plotter. Fasten using the four coin screws or hexagonal socket bolts (M6).

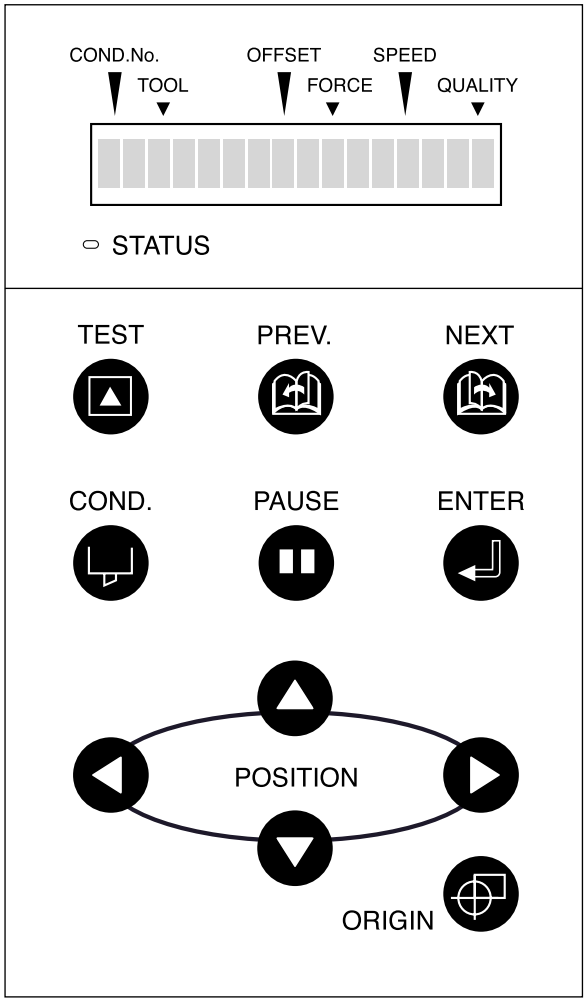


(4) Pull out the sheet support pipe and attach the sheet. Divide the sheet over the center bar, and then fasten the sheet to the sheet support pipe using the press-studs.



3. OPERATIONS

3.1 Control Panel



Indicator Lamp

STATUS.....Illuminates while the power to the cutting plotter is turned on, and goes out when the cutting plotter is in PAUSE status. This lamp flashes when data is being received from an interface, regardless of whether or not the cutting plotter is in PAUSE status.

Panel Keys

TEST.....Press this function key to conduct a cutting test and check the cutting conditions.

PREV. .....Press this function key to view the previous display on the LCD when in PAUSE status.

NEXT.....Press this function key to view the next display on the LCD when in PAUSE status.

COND. .....Press this function key to view the cutter-pen condition settings.

PAUSE.....Press this function key once in READY status to switch to PAUSE status in order to change the various settings. Press it again to cancel the PAUSE status. Pressing this key while cutting or plotting is in progress stops the cutting or plotting.

ENTER .....Pressing this function key registers the cutting or plotting conditions set.

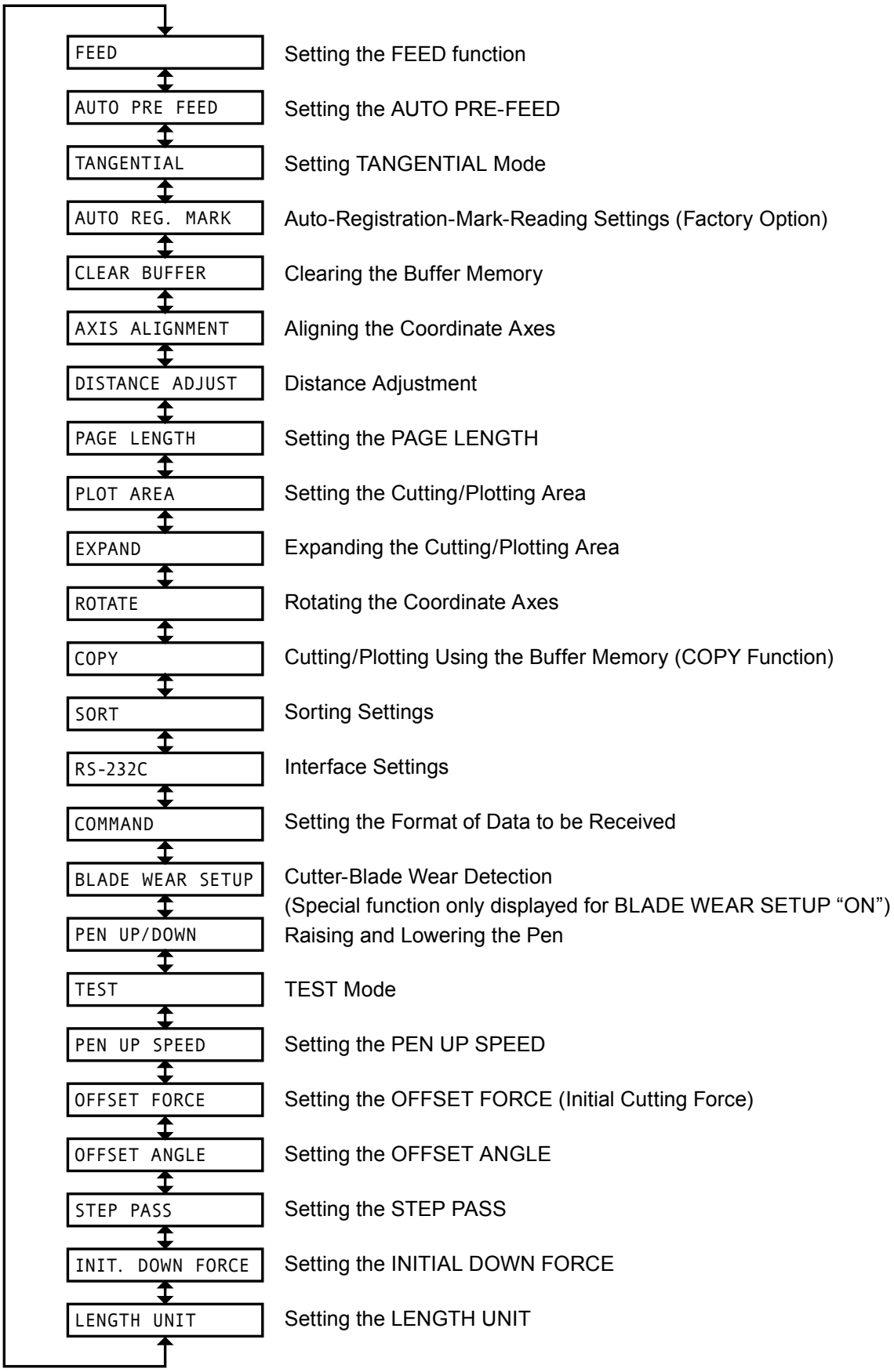
POSITION .These keys are used to move the cursor or change the settings on the LCD display on the function setting screens. Press these keys when in PAUSE status to move the pen carriage or the medium.

ORIGIN.....Press this function key to set the origin point. The pen position is set as the origin point when this key is pressed.

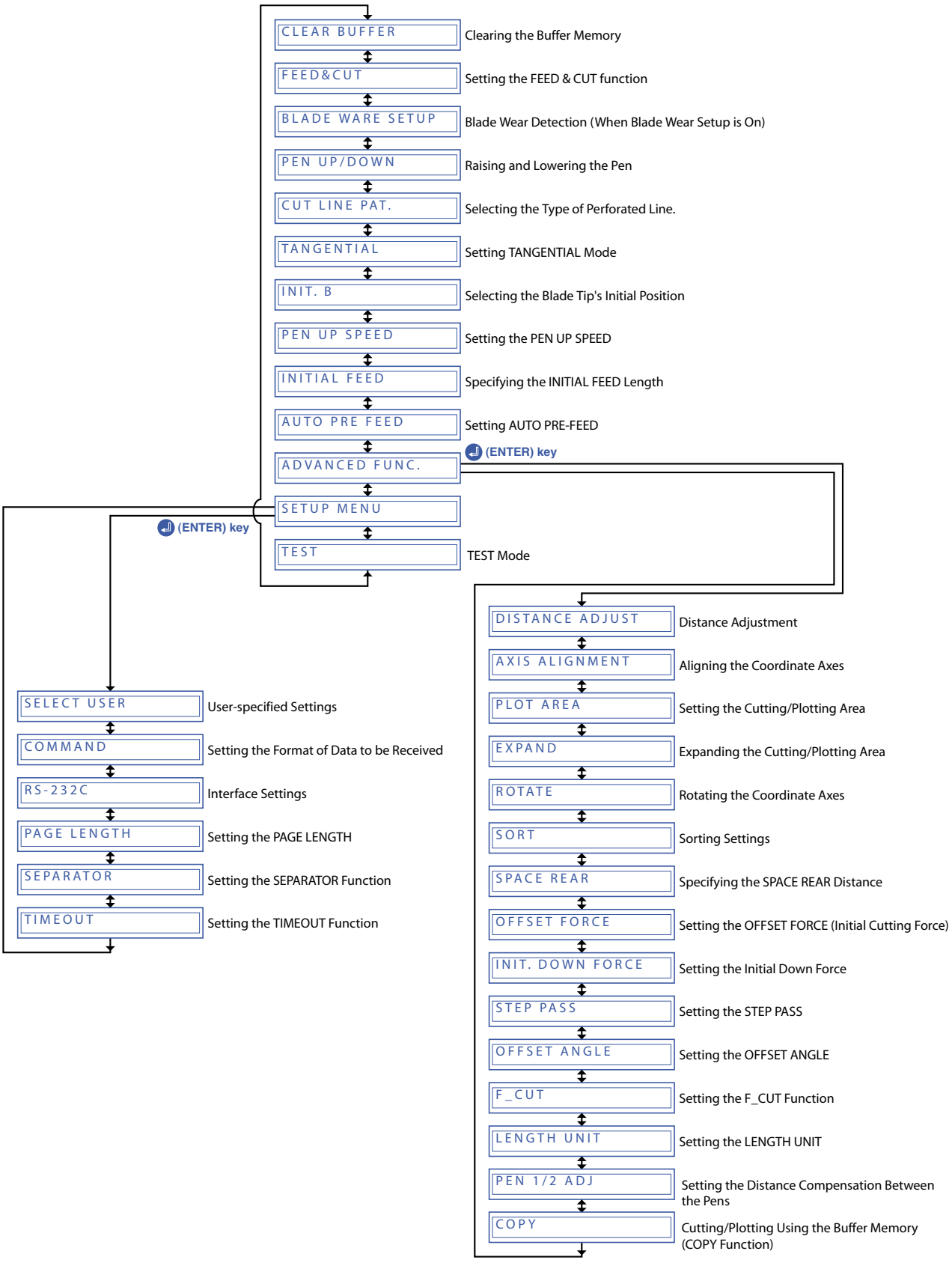
3.2 Menu List

Pressing the (PAUSE) key in READY mode displays the PAUSE menu, enabling the various settings to be made. Select the required menu by scrolling through the list using the (NEXT) and (PREV.) keys.

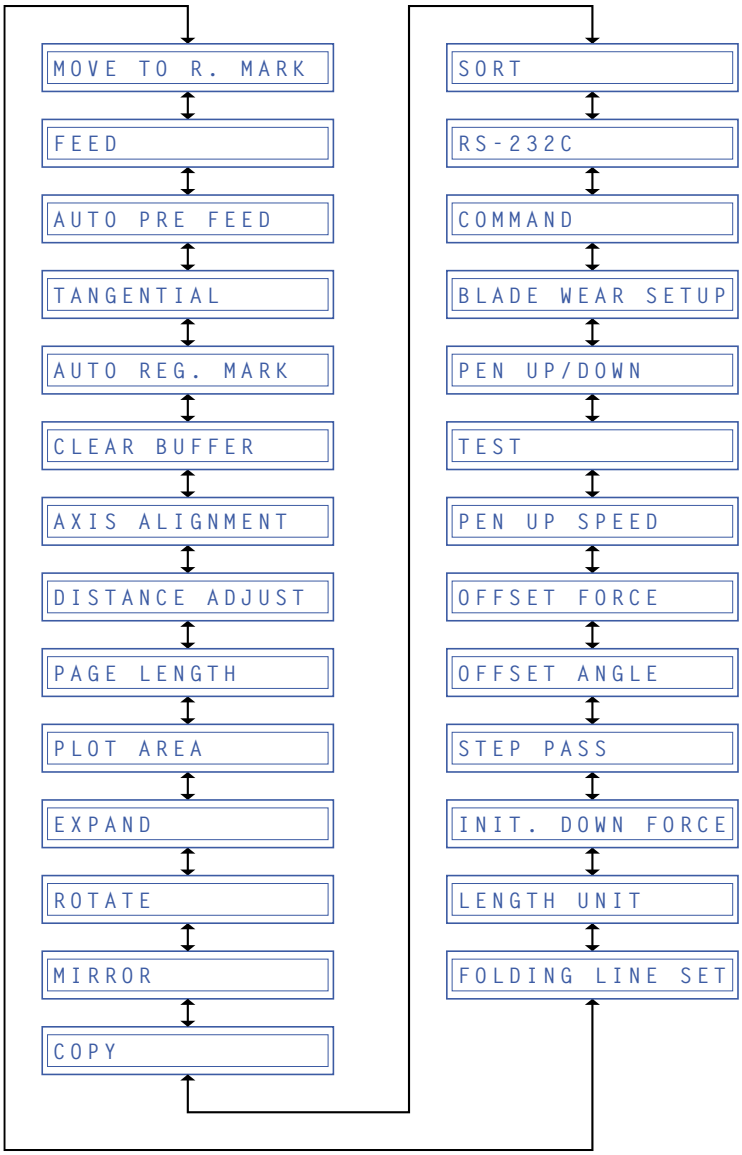
CE3000-40/60/120



CE3000-120AP



CE3000-40CRP (Craft Robo Pro)

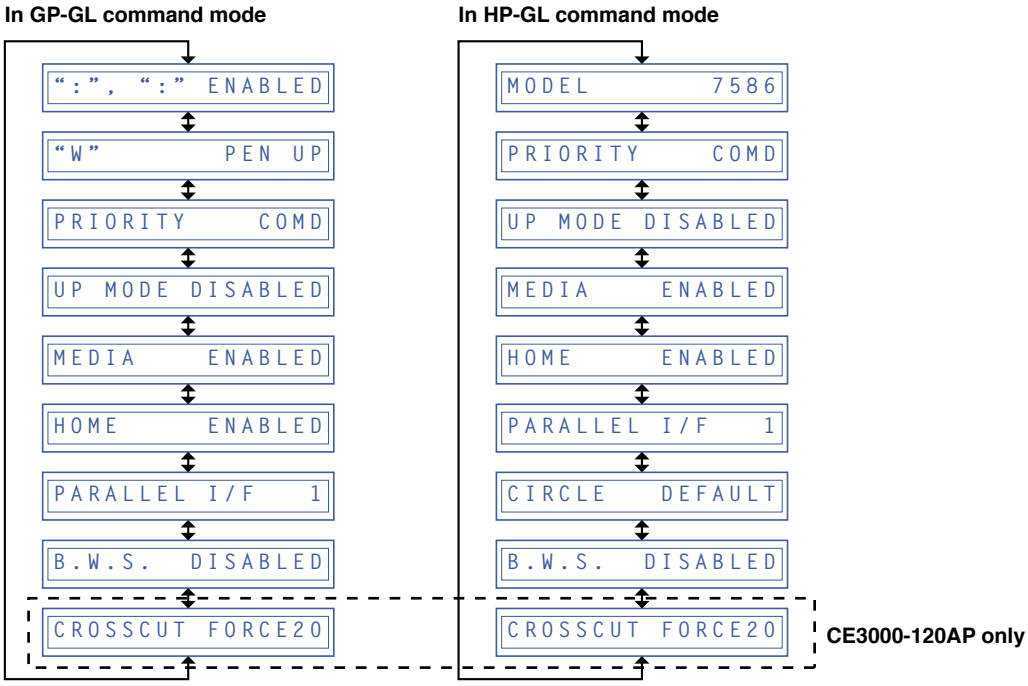


Note: This menu is only displayed when "ON" has been specified at the B.W.S. (Blade Wear Setup) submenu in the Special Functions menu.

3.3 Description of Special Functions A

The cutting plotter is provided with the special functions described below. These functions are specified only in special situations, and are not normally used.

(1) Turn on the cutting plotter while holding down the ▽ key. The menus for setting the special functions are displayed.



(2) Scroll up or down to select the required menu using the (NEXT) or (PREV.) keys.

(3) Select the setting details using the △ and ▽ keys, and press the (ENTER) key to register the setting. To cancel, press the (NEXT) or (PREV.) key. The next menu is displayed.

(4) Once all the settings have been made, turn off the cutting plotter.

- **Enabling/Disabling the ":" and ";" Commands (when the COMMAND setting is GP-GL)**

  This function enables or disables the ":" and ";" commands when the COMMAND setting is GP-GL. If the first part of the data is lost, these commands may be having an adverse effect. In this case, set this function to DISABLED (the default setting is ENABLED).

- **Moving the Pen While Raised or Lowered in Response to the "W" Command (when the COMMAND setting is GP-GL)**

  This function selects whether, upon receipt of the "W" command for the drawing of arcs, the cutting plotter moves the pen to the specified starting position, raised or in the pen status (raised or lowered) that was in effect immediately prior to receipt of the "W" command.

  When PEN DOWN is selected, the pen is moved to the starting position for the drawing of arcs in the pen status (raised or lowered) that was in effect immediately prior to receipt of the "W" command.

  When PEN UP is selected, the pen is moved to the starting position for the drawing of arcs in the raised status. This setting is only effective if a cutter blade has been selected in the cutter-pen settings.

  (The default setting is PEN UP.)

- **Model ID Response (when the COMMAND setting is HP-GL)**

  This function sets the response to the “OI” command when the COMMAND setting is HP-GL.
  When 7550 is set, the “OI” command response is 7550.
  When 7586 is set, the “OI” command response is 7586.
  (The default setting is 7550.)

- **SETTING PRIORITY**

  This function sets whether the cutting plotter places priority on the cutting conditions specified through command input from the computer or through manual settings (on the cutting-plotter control panel).
  When MANUAL is selected, cutting is performed using the cutting conditions set at the control panel, and cutting conditions sent from the computer are ignored.
  When PROGRAM is selected, cutting is performed using the cutting conditions specified in a received cutting-condition command. If no commands are received, cutting is performed using the cutting conditions set at the control panel.
  (The default setting is MANUAL.)

- **Blade-Tip Initial Position Setting**

  The cutter blade is placed on the medium to orient it after the power is turned on or the cutter-pen conditions are set. This is referred to as “initializing” the cutter blade.
  This function sets the “Blade-Tip Initial Position” for this operation.
  When 2 mm BELOW is selected, initial blade control is performed at a position 2 mm below the cutting start position.
  When OUTSIDE is selected, initial blade control is performed outside of the effective cutting/plotting area.
  (The default setting is 2 mm BELOW.)

- **Enabling/Disabling PEN UP MOVE**

  This function sets whether the pen will travel to each point specified or only from the initially specified pointto the last specified point when consecutive commands are received specifying pen movement while it israised.
  When ON is selected, the pen travels consecutively to each coordinate specified by the data received.
  When OFF is selected, the pen travels directly from the initially specified point to the last specified point.
  (The default setting is OFF.)

- **Enabling/Disabling the Media Sensors**

  This function sets the media sensors that detect the size of the medium in the feed direction.
  When ON is selected, the feed-direction media sensors are enabled.
  When OFF is selected, the feed-direction media sensors are disabled.
  (The default setting is ON.)

- **Enabling/Disabling the Home Sensors**

  This function sets the home sensors that detect the width of the medium.
  When ON is selected, the home sensors are enabled.
  When OFF is selected, the home sensors are disabled.
  (The default setting is ON.)

- **Setting the PARALLEL I/F Mode**

  Parallel (Centronics-compatible) interfaces have various timing methods for their signal lines. If the signal timings do not match, data cannot be received accurately via the Centronics-compatible parallel interface.

  This function allows the timing of the Centronics-compatible parallel interface to be changed by selecting one of four different modes (1 through 4).

  (The default setting is 1.)

- **Circle-Command Resolution Setting (when the COMMAND setting is HP-GL)**

  This function sets whether the resolution is automatically set or fixed at a constant 5 degrees when a cutting-plotter circle command is output while the COMMAND setting is HP-GL.

  (The default setting is Auto.)

- **Enabling/Disabling Blade Wear Detection**

  When ON is selected, the blade wear-detection setting is enabled and the blade wear-detection setting menu is displayed in the PAUSE menu.

  When OFF is selected, the blade wear-detection setting is disabled, and the blade wear-detection setting menu is removed from the PAUSE menu and is not displayed.

  (The default setting is OFF.)

- **Setting the Cross-Cut Force (CE3000-120AP only)**

  The cross-cut force can be set in the range “1” to “31”.

  The default value is 20.

3.4 Description of Special Functions B

These functions are specified only in the special situations described below, and are not normally used.

- **Display Language Setting (MENU LANGUAGE SELECTION)**

  This function sets the language used on the display. One of six languages can be selected: English, French, German, Italian, Spanish, or Japanese.

(1) Turn the cutting plotter on while holding down the (ENTER) and (ORIGIN) key simultaneously. The special functions B setting menu is displayed.

```
DISPLAY  ENGLISH
```

(2) Use the △ and ▽ keys to select the desired display language, and then press the (ENTER) key to confirm. To cancel, press the (NEXT) or (PREV.) key.

(3) Once all the settings have been made, turn off the cutting plotter.

4. RECOMMENDED PARTS LIST

No.	Part No.	Description	-40	-40CRP	-60	-120	-120AP	Remarks
1	095002121	Push Roller	2	2	2	3	3	
2	621230230	Cutting Mat 40	1	1	–	–	–	
	621230070	Cutting Mat 60	–	–	1	–	–	
	621230371	Cutting Mat 120	–	–	–	1	–	
	621250520	Cutting Mat 120AP	–	–	–	–	1	
3	095013010	Roller BB13	7	7	7	7	7	
4	621233200	Y Belt 40	1	1	–	–	–	
	621113021	Y Belt 60	–	–	1	–	–	
	621153201	Y Belt 120	–	–	–	1	1	
5	621113540	Cutter Pen Holder	1	1	1	1	–	
	622192012	Cutter Pen Holder B	–	–	–	–	1	
	622192060	Pen Holder AP	–	–	–	–	1	
	792219702	Pen Holder Assy 4200	–	–	–	–	1	
	792219703	Pen Station Assy 4200	–	–	–	–	1	
6	621113581	Pen Holder Thumb Screw L14	1	1	1	1	–	
	621113591	Pen Holder Thumb Screw L10	–	–	–	–	1	
7	791230710	Y Drive Pulley	1	1	1	1	1	
8	791230715	Main Board 40	1	1	–	–	–	
	791230714	Main Board 60/120	–	–	1	1	–	
	791230720	Main Board 120AP	–	–	–	–	1	
	791230722	Main Board 40 Mk2	–	1	–	–	–	CE3000-40Mk2
	791230723	Main Board 60/120 Mk2	–	–	1	1	–	CE3000-60Mk2/120Mk2
	791230719	Main Board 40 CRP	1	–	–	–	–	CE3000-40CRP
9	682123200	Fan 3612-05W-B50-B03	1	1	1	2	2	Craft Robo Pro
10	692123330	Y Flexible Cable 40/60	1	1	1	–	–	FPC270103
	692123340	Y Flexible Cable 120	–	–	–	1	1	FPC270104
11	500051380	Power Supply	1	1	1	1	1	SWD060P-24
12	692123350	Cam Sensor Flexible Cable	1	1	1	1	1	FPC270105
13	692123360	Push Roller Sensor Flexible Cable	1	1	1	1	1	FPC270106
14	692123320	Control Panel Flexible Cable	1	1	1	1	1	FPC270102
15	500051382	Paper Sensor	2	2	2	2	2	PS-117ND1
16	682123210	X Motor for CE3000-40	1	1	–	–	–	KH42JM2R033
	682900600	X Motor for CE3000-60	–	–	1	–	–	TS3747N46E3
	772123620	X Motor for CE3000-120	–	–	–	1	1	UGFMED-B5LGRA5
17	682123220	Y Motor for CE3000-40	1	1	–	–	–	KH42JM2R034
	682900610	Y Motor for CE3000-60/120	–	–	1	1	1	TS3747N47E3
18	791230700	Pen Block Assy for CE3000-40/60	1	1	1	–	–	
	791230701	Pen Block Assy for CE3000-120	–	–	–	1	–	
	791230721	Pen Block Assy for CE3000-120AP	–	–	–	–	1	
19	791230702	Y Relay Board	1	1	1	1	1	
20	791230703	Control Panel Board	1	1	1	1	1	PR270104
21	791230704	Push Roller Sensor Board	1	1	1	1	1	
22	791230705	Cam Sensor Board	1	1	1	1	1	
23	791230706	Auto Registration Sensor Board	1	1	1	1	–	
24	682123082	Control Panel Membrane Switch Panel	1	1	1	1	1	PR270108B

5. LIST OF TOOLS

5.1 Tools

No.	Adjustment Item	Jig	Tool
1	Pen force adjustment	Cutter Pen Holder (CB09)	Colex gauge (50,300,500 gf)
2	Distance adjustment		Glass scale
3	Pen block height adjustment	10 mm height block	
4	Firmware update		PC, Centronics I/F cable
5	X-drive belt tension adjustment		Push-pull gauge (2 kg)
6	Y-drive belt tension adjustment		Push-pull gauge (2 kg)
7	Replacing the main board		Short screwdriver (50 mm)
8	Replacing the vacuum fan		

5.2 Greasing And Gluing Points

No.	Grease or Glue Point	Grease or Glue name	Application quantity
1	Cam	Shinetu silicon grease G501	Suitable quantity
2	X-drive motor pulley	Shinetu silicon grease G501	Suitable quantity
3	Y-drive motor pulley	Shinetu silicon grease G501	Suitable quantity
4	X-drive pulley	Shinetu silicon grease G501	Suitable quantity
5	Y-drive pulley	Shinetu silicon grease G501	Suitable quantity
6	Y-tension pulley	Shinetu silicon grease G501	Suitable quantity
7	Y-rail, push roller assy sliding area	Shinetu silicon grease G501	Suitable quantity
8	Y-motor drive pulley set screws	Loctite 222	Small quantity
9	X-motor drive pulley set screws	Loctite 222	Small quantity
10	X-drive pulley set screws	Loctite 222	Small quantity

5.3 Subparts List

No.	Where used	Subpart name	Size
1	Front Guide 120	Measuring tape	250 mm x 2
2	Rear paper sensor	Outdoor use cutting sheet, black	7 x 15 mm, thickness 0.08 to 0.1 mm
3	Y-relay board core	Double-sided adhesive tape	10 x 20 mm
4	Y-rail	Double-sided adhesive tape	10 x 15, 10 x 50 mm
5	Y-relay board	Harness tiewrap	About 100 x 2.5 mm, t=1.0 mm
6	Vacuum fan wiring harness	Harness tiewrap	About 100 x 2.5 mm, t=1.0 mm
7	Y-motor	Bush	5 x 3 mm
8	Tension pulley	Bush	4 x 3 mm
9	Drive roller bearing	Bush	3 x 4.5 mm
10	Cam sensor bracket	Bush	4 x 2, 4 x 12 mm
11	Cam sensor bracket	Washer	4 mm

6. DISASSEMBLY AND REASSEMBLY

6.1 Exterior Parts

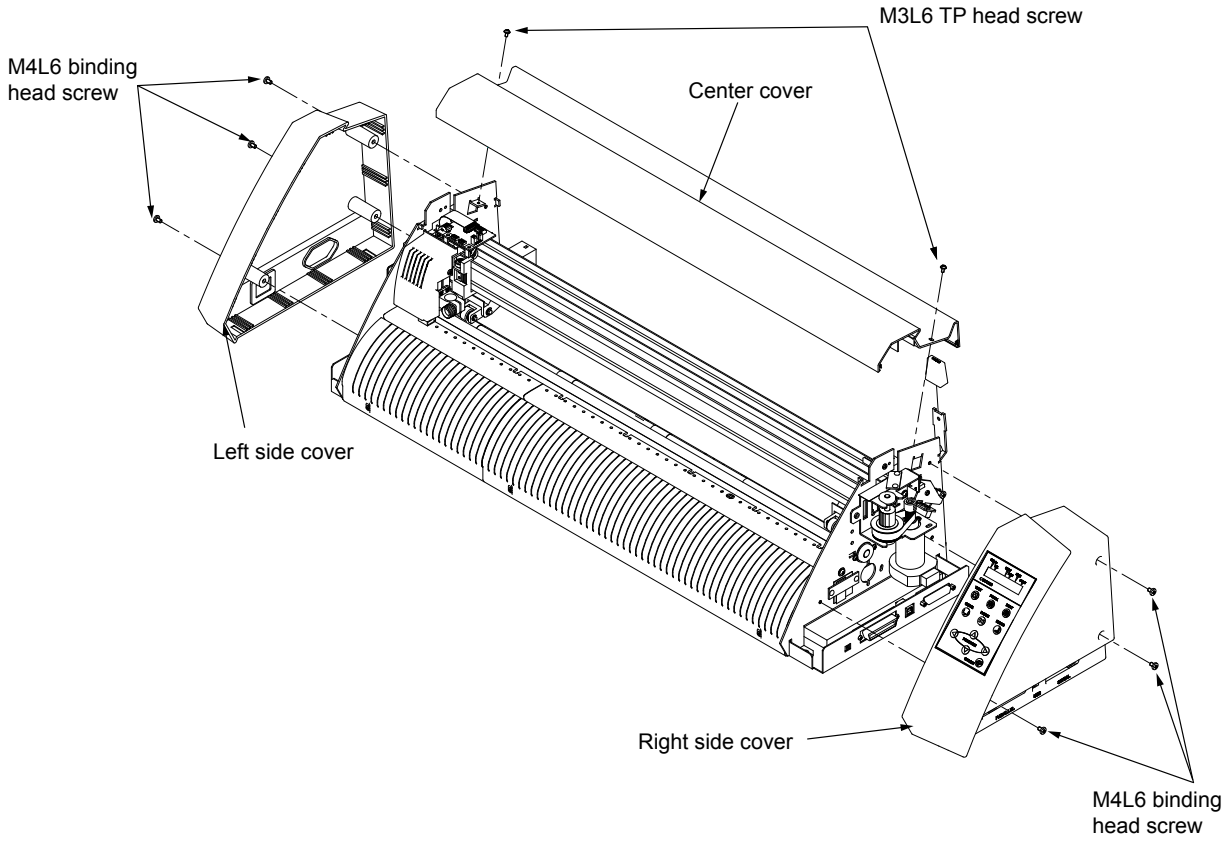
6.1.1 How to Replace the Right Side Cover

How to detach the right side cover

(1) Remove the three M4L6 binding head screws from the right side cover.

Note: Hold the right side cover after you have detached the screws; there is a flexible cable inside the cover.

(2) Disconnect the flexible cable which is connected to the control panel relay board.



How to reinstall the right side cover

(1) Connect the flexible cable to the control panel relay board, and mount the right side cover.

(2) Fasten the three M4L6 binding head screws.

6.1.2 How to Replace the Left Side Cover

How to detach the left side cover

(1) Remove the three M4L6 binding head screws from the left side cover.

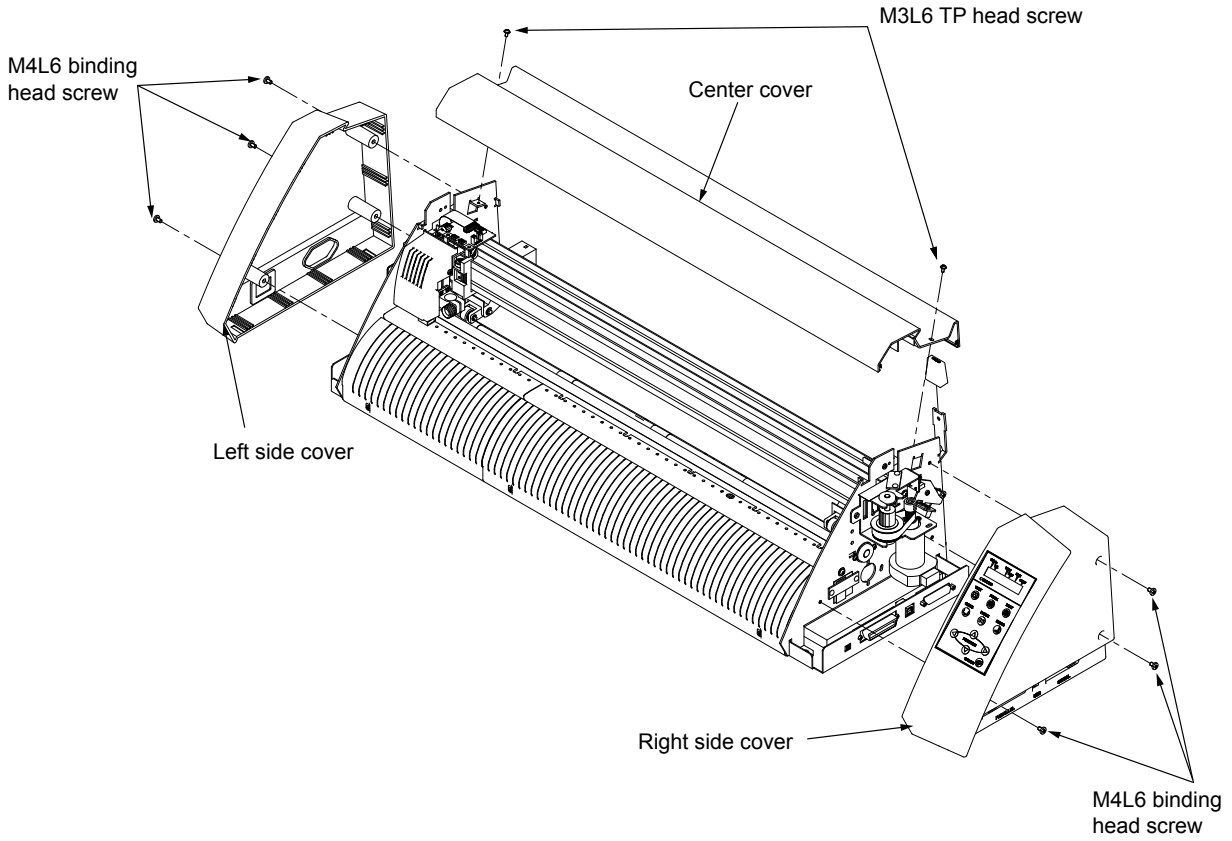
How to reinstall the left side cover

(1) Fasten the three M4L6 binding head screws.

6.1.3 How to Replace the Center Cover

How to detach the center cover

(1) Remove the two M3L6 TP screws from the center cover.



How to reinstall the center cover

(1) Mount the center cover and fasten the two M3L6 TP head screws.

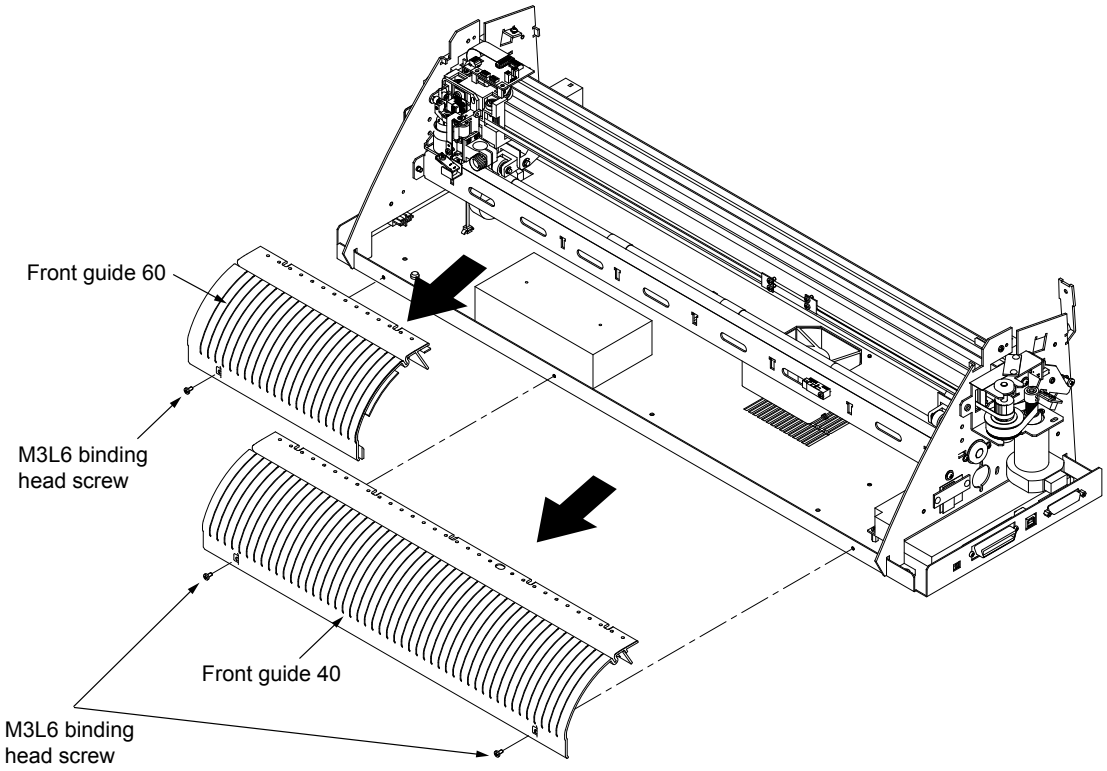
6.1.4 How to Replace the Front Guide (CE3000-40/60)

How to detach the front guide (CE3000-60)

(1) Remove the two M3L6 binding head screws from front guide 40.

(2) Remove the M3L6 binding head screw from front guide 60.

(3) Pull out the front guides to the front.



How to detach the front guide (CE3000-40)

(1) Remove the two M3L6 binding head screws from front guide 40.

(2) Pull out the front guide to the front.

How to reinstall the front guide (CE3000-60)

(1) Install the front guide 60 and fasten the one M3L6 binding head screw.

(2) Install the front guide 40 and fasten the two M3L6 binding head screws.

How to reinstall the front guide (CE3000-40)

(1) Install the front guide 40 and fasten the two M3L6 binding head screws.

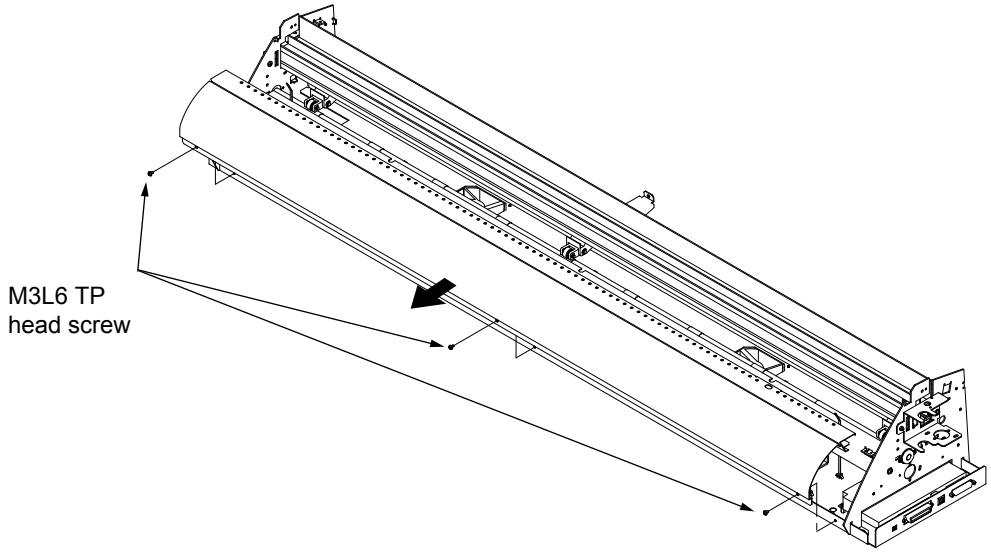
6.1.5 How to Replace the Front Guide (CE3000-120)

There are two measuring tapes on the front guide of the CE3000-120. You have to attach new tapes after replacing the front guide.

How to detach the front guide (CE3000-120)

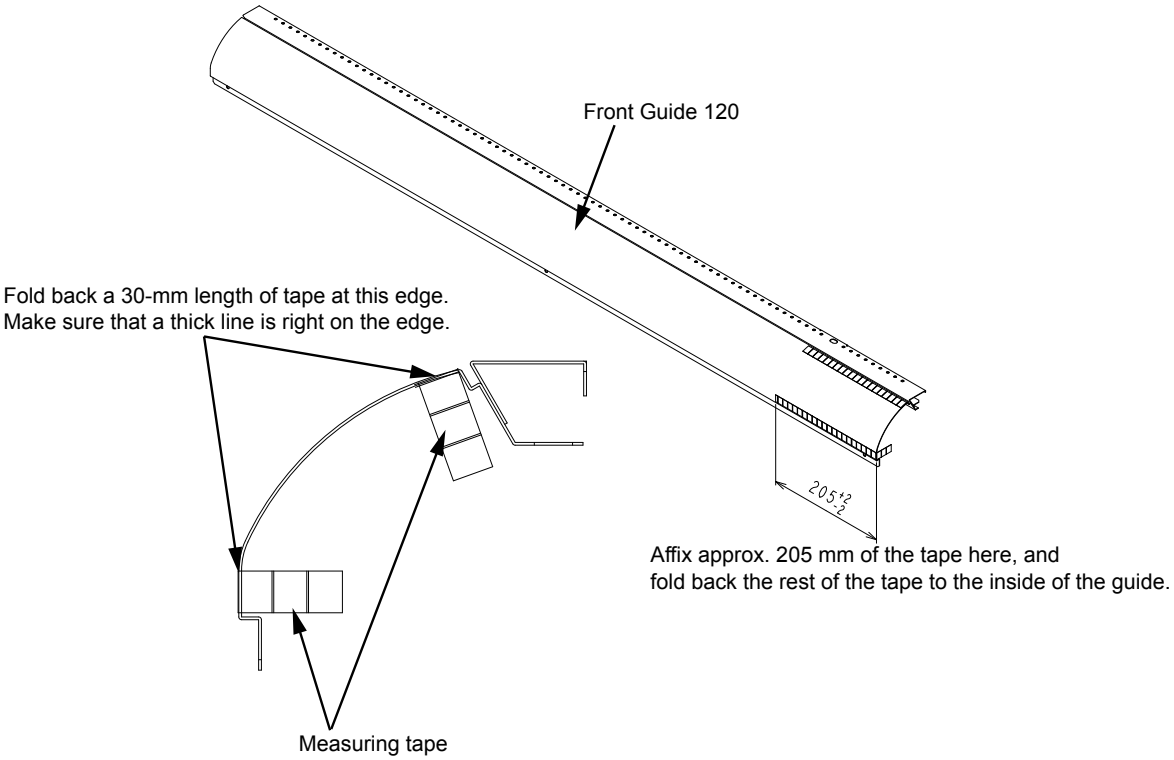
(1) Remove the two M3L6 TP head screws from front guide 120.

(2) Pull out the front guide to the front.



How to reinstall the front guide (CE3000-120)

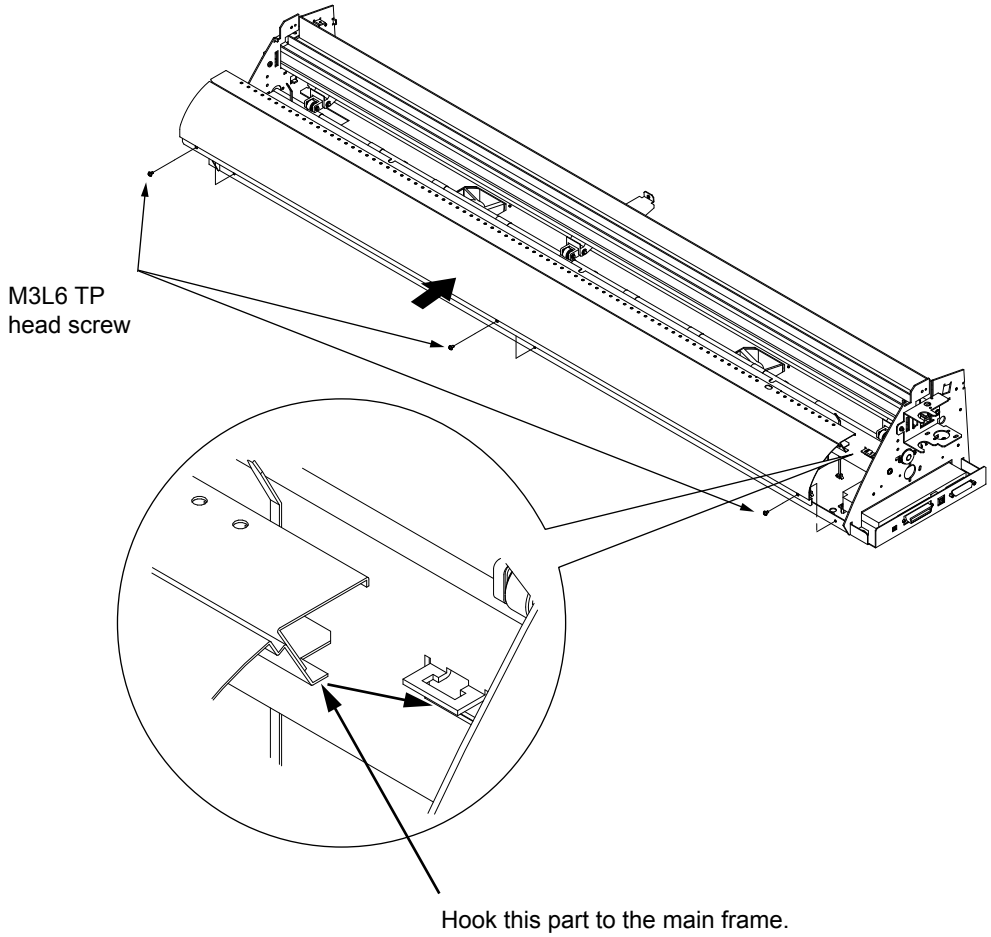
(1) Have ready two 250 mm-long measuring tapes when you replace the front guide.


Front Guide 120
Fold back a 30-mm length of tape at this edge.
Make sure that a thick line is right on the edge.
205±2
Affix approx. 205 mm of the tape here, and
fold back the rest of the tape to the inside of the guide.
Measuring tape

(2) Clean the surface of the front guide 120 with alcohol at the locations where the measuring tapes will be affixed.

(3) Affix the measuring tapes as shown in the above figure.

(4) Install the front guide as shown below.



(5) Slide in the front guide 120 and hook the notch to the main frame as shown in the above figure.

(6) Fasten the three M4L6 TP head screws.

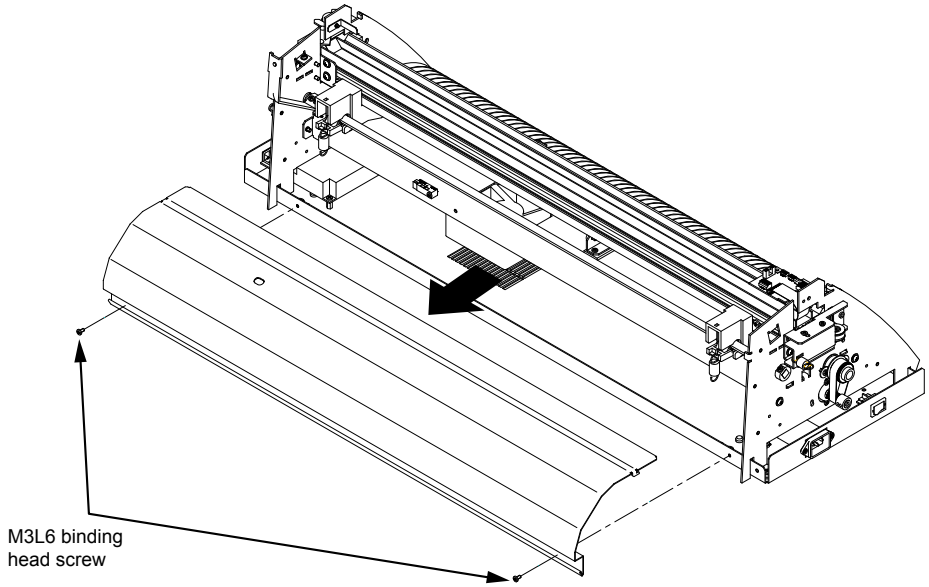
6.1.6 How to Replace the Rear Guide

How to detach the rear guide

(1) Remove the two M3L6 binding head screws from the rear guide.
(Remove the three M3L6 binding head screws from the rear guide for the CE3000-120.)

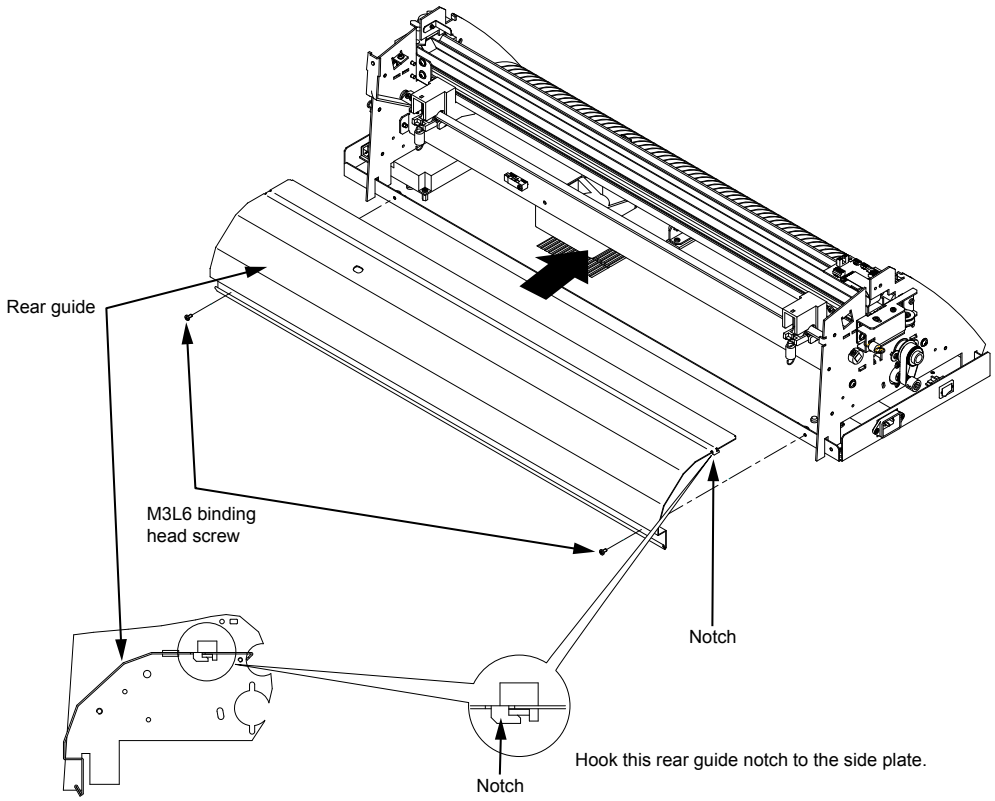
(2) Set the cam lever to the media hold position.

(3) Pull out the rear guide to the rear.



How to install the rear guide

(1) Slide in the rear guide and hook the notches to the left and right side plates as shown in the figure below.
(The CE3000-120 has six notches; two notches for the left and right side plates, and four notches for the center chassis.)



(2) Fasten the two M3L6 binding head screws.
(Fasten the three M3L6 binding head screws for the CE3000-120.)

6.2 Mechanical Parts

6.2.1 How to Replace the Front and Rear Media Sensors

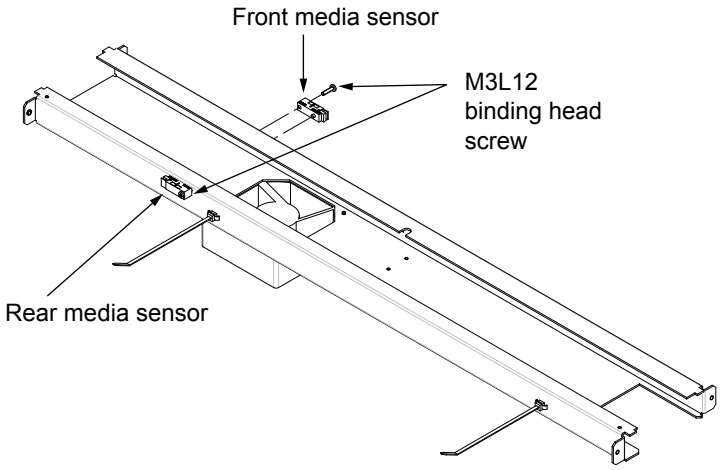
You need to use a strip of cutting film whenever you replace the rear sensor.

How to detach the front or rear media sensor

(1) Detach the front or rear guide (Front guide: see Subsection 6.1.4 for CE3000-40 and 60, and Subsection 6.1.5 for CE3000-120; Rear guide: see Subsection 6.1.6).

(2) Remove the M3L12 binding head screw attaching the sensor.

(3) Disconnect the sensor from the connector.



How to reinstall the front media sensor

(1) Connect the sensor to the connector.

(2) Fasten the M3L12 binding head screw to mount the sensor.

(3) Install the front guide.

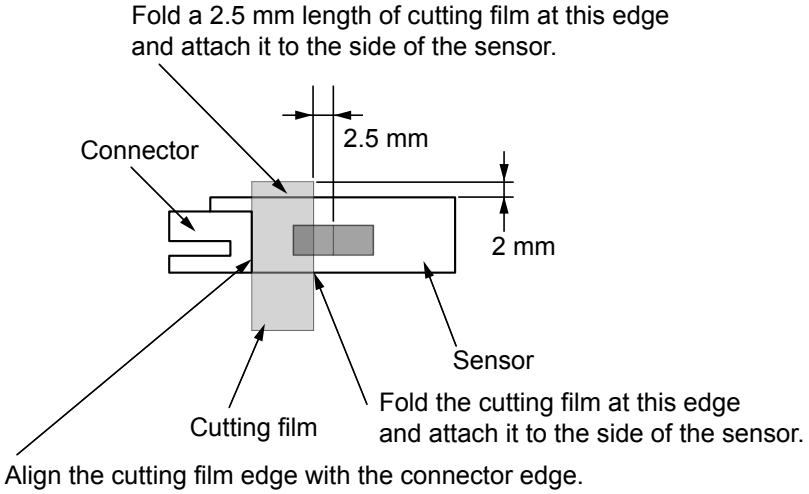
How to reinstall the rear media sensor

(1) Place a strip of cutting film on the rear sensor as shown in the figure below.

Type of cutting film : Outdoor use black cutting film

Size of film : 7 x 15 mm

Thickness : 0.08 to 0.1 mm


Fold a 2.5 mm length of cutting film at this edge
and attach it to the side of the sensor.
2.5 mm
Connector
2 mm
Sensor
Fold the cutting film at this edge
and attach it to the side of the sensor.
Cutting film
Align the cutting film edge with the connector edge.

(2) Connect the sensor to the connector.

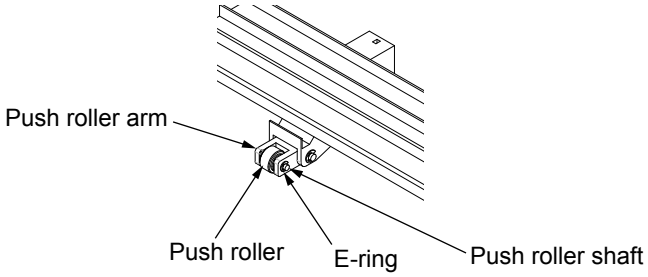
(3) Fasten the M3L12 binding head screw to mount the sensor.

(4) Install the rear guide.

6.2.2 How to Replace the Push Roller

How to detach the push roller

(1) Detach the right side of the E-ring from the push roller shaft.



(2) Detach the push roller shaft from the push roller arm from the left side.

(3) Detach the push roller.

How to reinstall the push roller

(1) Reattach the push roller in the reverse order in which it was detached.

6.2.3 How to Replace the Push Roller Arm

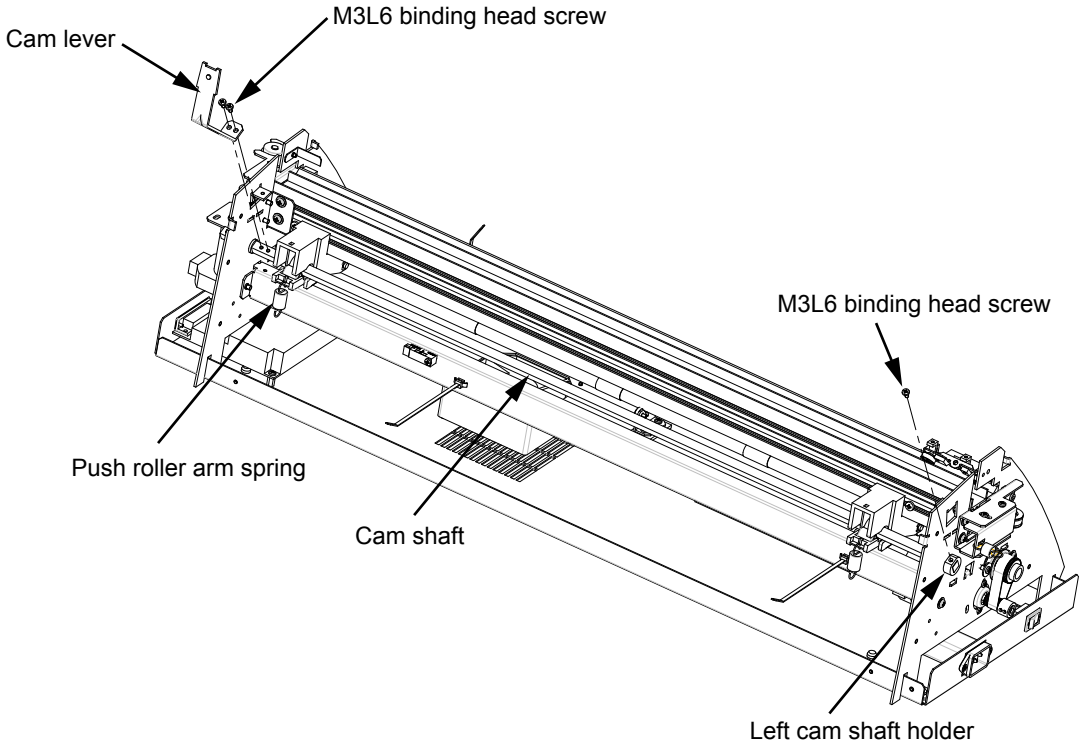
How to detach the push roller arm

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the center cover (see Subsection 6.1.3).

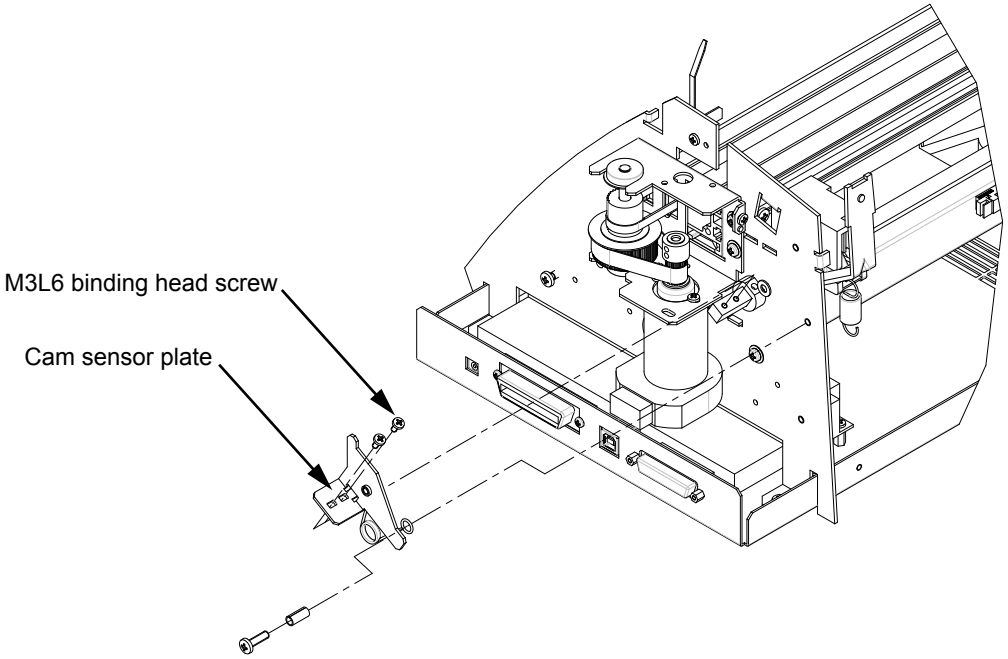
(3) Set the cam lever to the media release position.

(4) Remove the two M3L6 binding head screws attaching the cam lever.

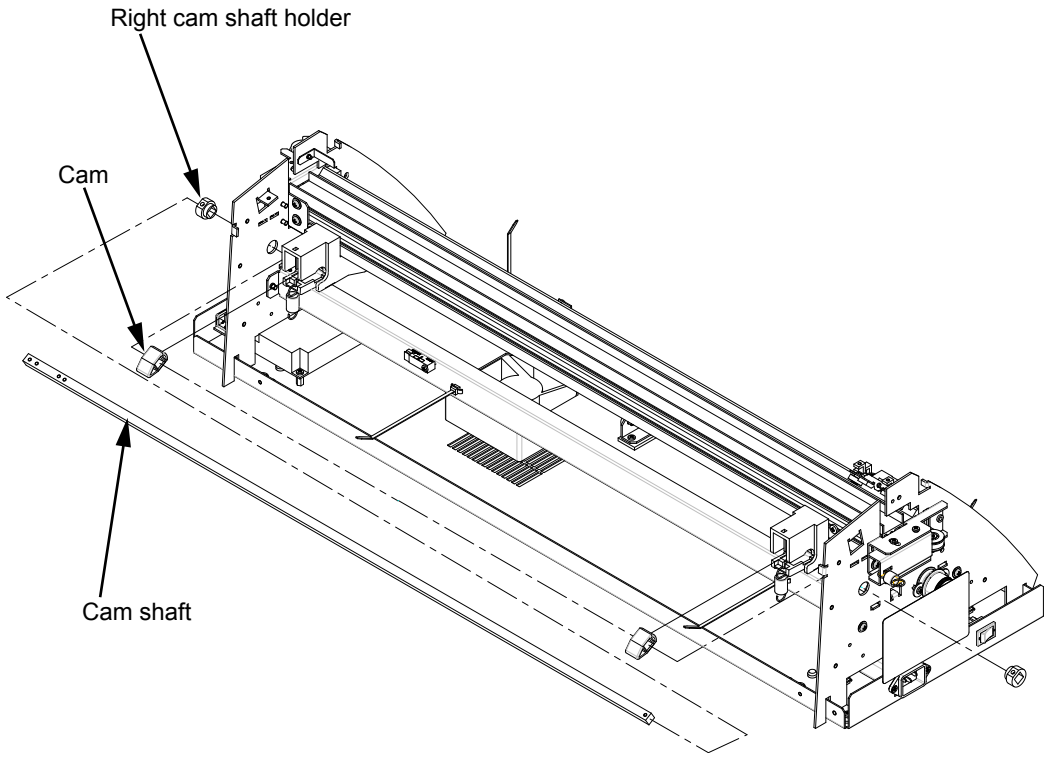


(5) Remove the M3L6 binding head screw attaching the left side cam shaft holder.

(6) Remove the two M3L6 binding head screws attaching the cam sensor plate to the cam shaft.



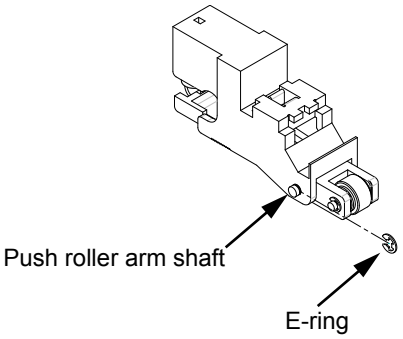
(7) Detach the right side cam shaft holder.



(8) Pull out the cam shaft from the right side.

(9) Detach the push roller arm spring from the push roller arm.

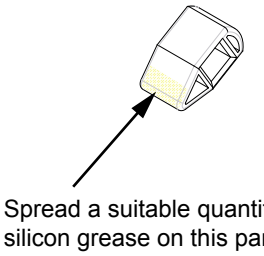
(10) Detach the E-ring from the push roller arm shaft.



(11) Detach the push roller arm shaft from the push roller arm and detach the push roller arm, push roller arm base, and the cam.

How to reinstall the push roller arm

(1) Spread a suitable quantity of the Shinetu silicon grease G501 on the cam as shown below.



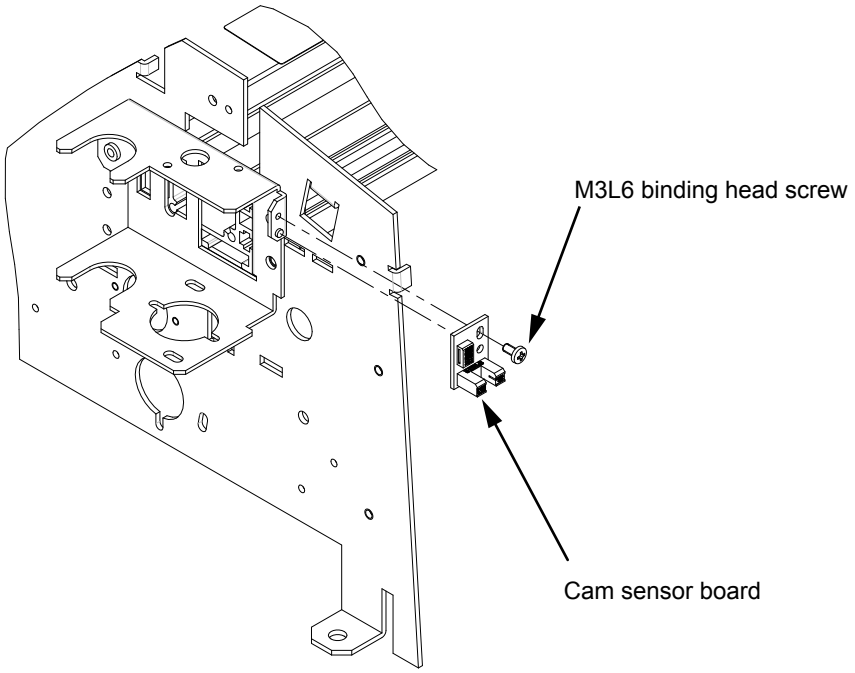
(2) Reattach the push roller arm in the reverse order in which it was detached.

6.2.4 How to Replace the Cam Sensor Board

How to detach the cam sensor board

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Disconnect the flexible cable from connector J701 on the cam sensor board.



(3) Remove the M3L6 binding head screw attaching the cam sensor board.

How to reinstall the cam sensor board

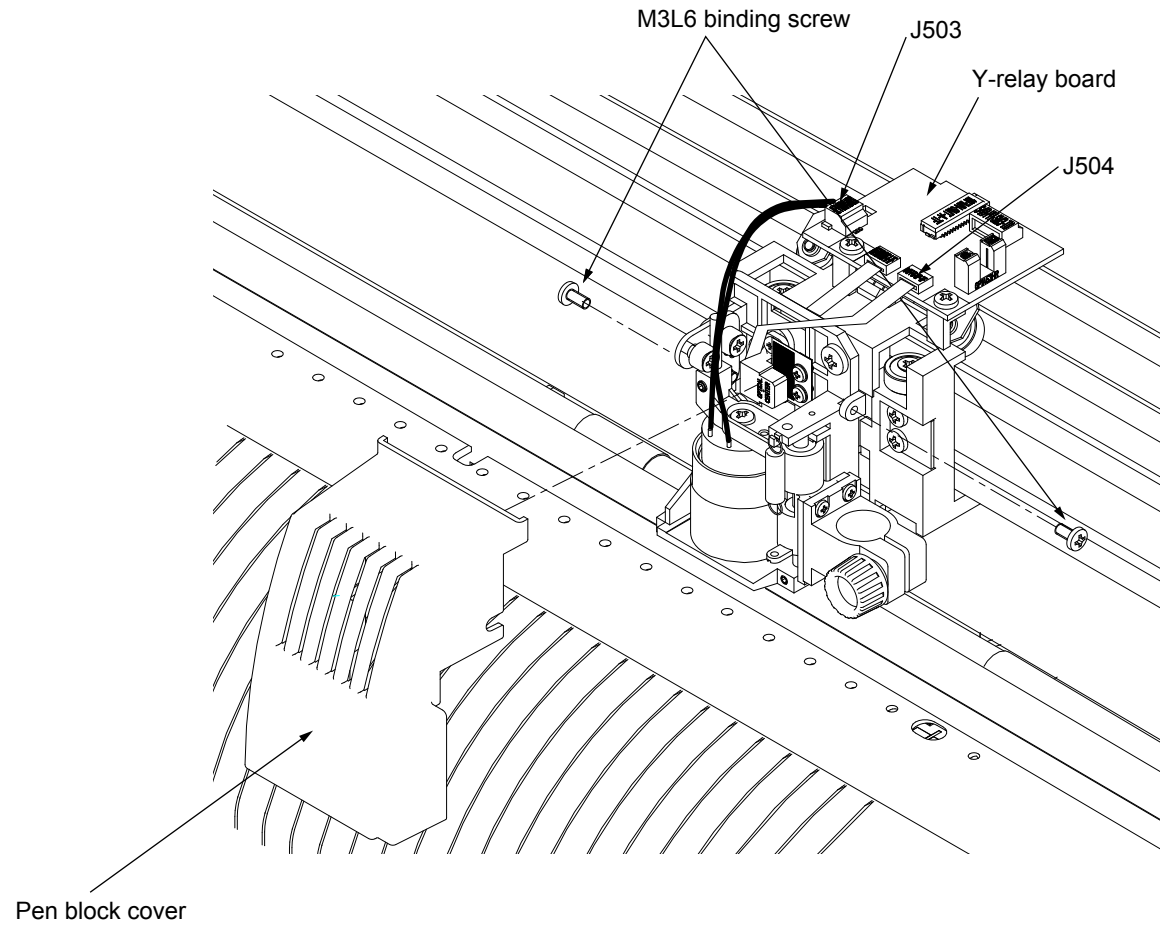
(1) Reattach the cam sensor board in the reverse order in which it was detached.

6.2.5 How to Replace the Pen Block (without Auto Registration Sensor)

How to detach the pen block

(1) Detach the center cover (see Subsection 6.1.3).

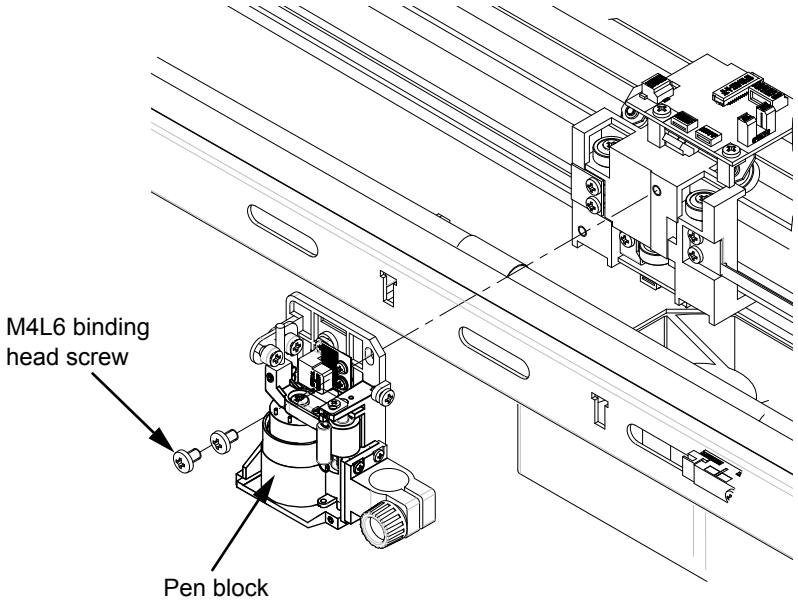
(2) Loosen the M3L6 binding head screw attaching the pen block cover.



(3) Remove the pen block cover.

(4) Disconnect the cable from connector J503 on the Y-relay board.
(Also disconnect the flexible cable from connector J504 when you are replacing the pen block on the CE3000-120)

(5) Remove the two M4L6 binding head screws attaching the pen block.

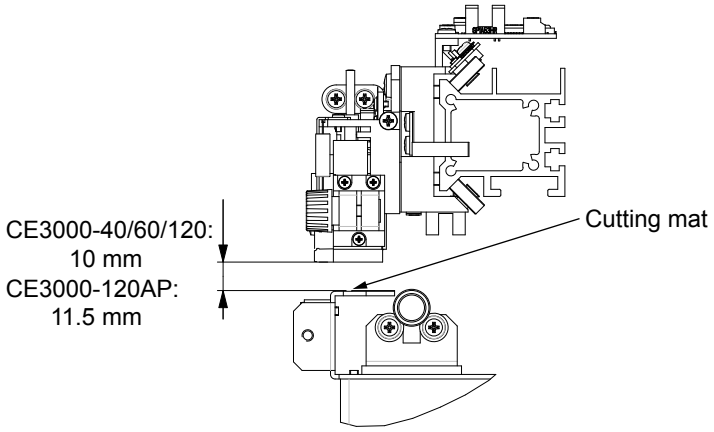


How to reinstall the pen block

(1) Attach the pen block to the Y-slider.

(2) Fasten the two M4L6 binding head screws to attach the pen block so that there is a gap of 10 mm (CE3000-120AP: 11.5 mm) between the bottom of the pen block and the cutting mat. Perform a visual check to make sure that the pen block is not mounted at an angle.

Side view of the pen block



(3) Reattach the other parts in the reverse order in which they were detached.

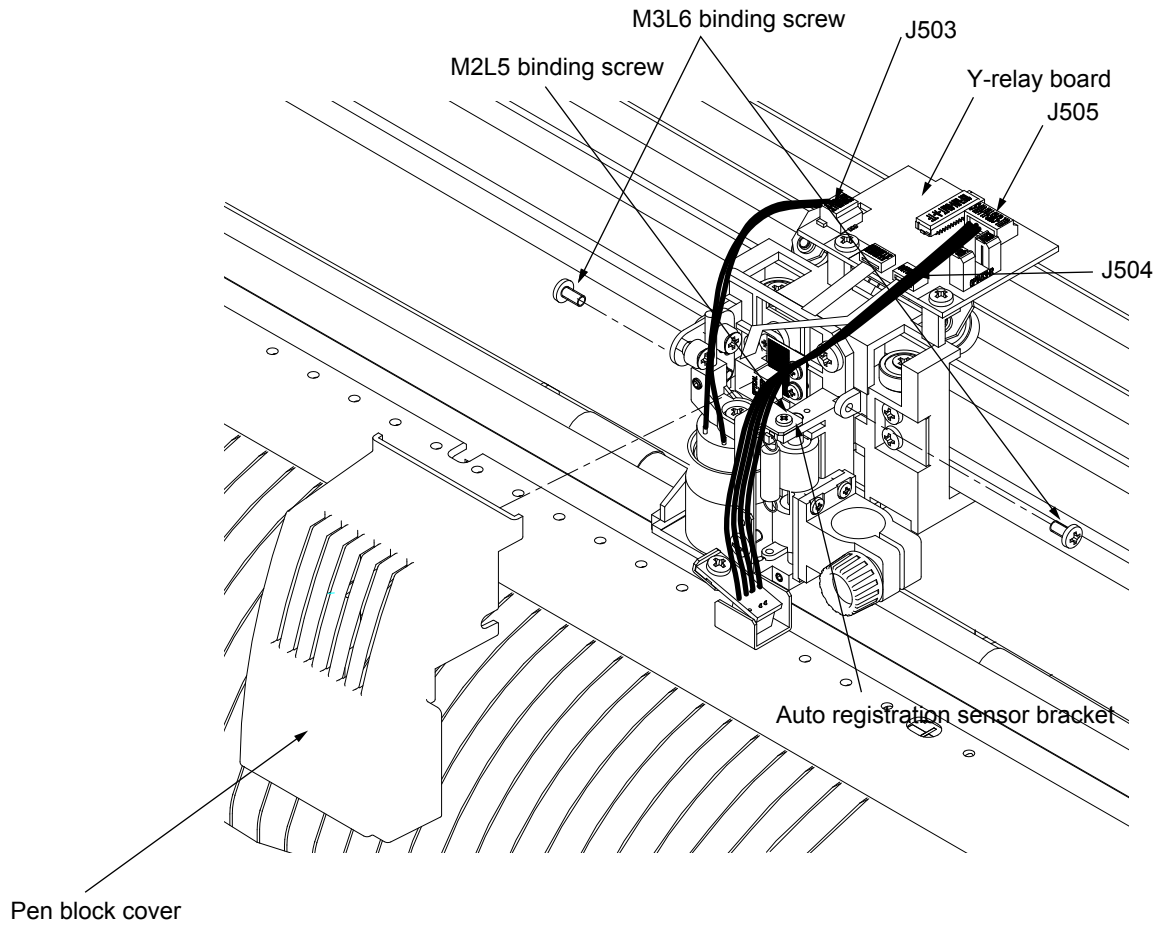
(4) Perform the pen force adjustment (see Section 7.5).

6.2.6 How to Replace the Pen Block (with Auto Registration Sensor)

How to detach the pen block

(1) Detach the center cover (see Subsection 6.1.3).

(2) Loosen the M3L6 binding head screw attaching the pen block cover.

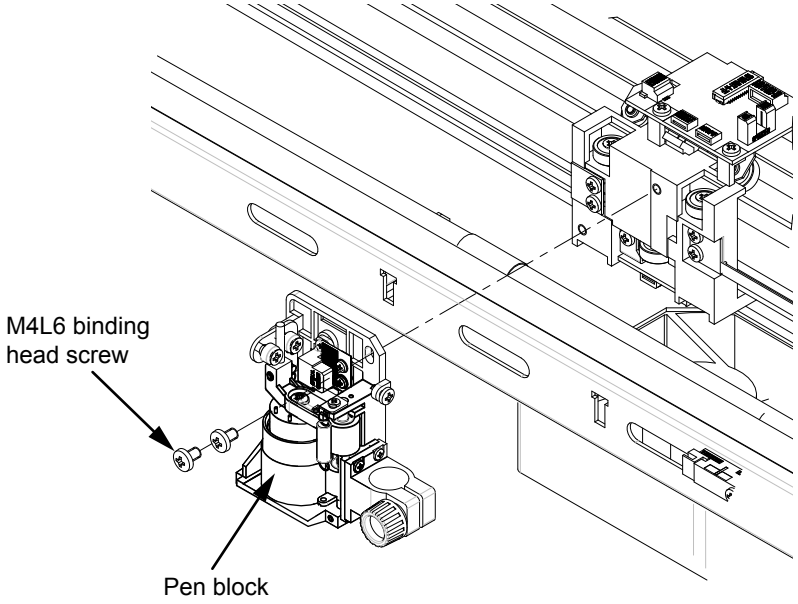


(3) Remove the pen block cover.

(4) Disconnect the cables from connector J503 and J505 on the Y-relay board.
(Also disconnect the flexible cable from connector J504 when you are replacing the pen block on the CE3000-120)

(5) Remove the two M2L5 binding head screws attaching the auto registration sensor bracket.
Then remove the auto registration sensor.

(6) Remove the two M4L6 binding head screws attaching the pen block.

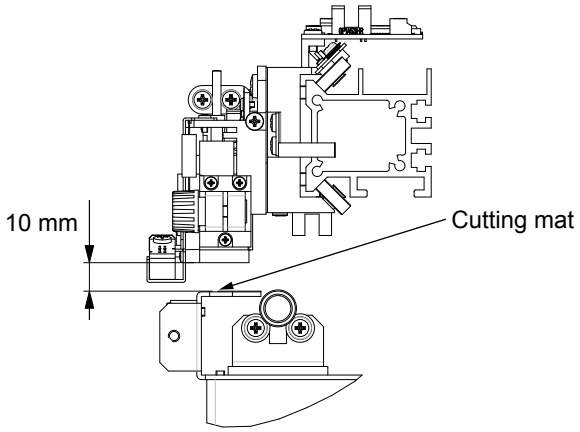


How to reinstall the pen block

(1) Attach the pen block to the Y-slider.

(2) Fasten the two M4L6 binding head screws to attach the pen block so that there is a gap of 10 mm between the bottom of the pen block and the cutting mat. Perform a visual check to make sure that the pen block is not mounted at an angle.

Side view of the pen block



(3) Reattach the other parts in the reverse order in which they were detached.

(4) Perform the pen force adjustment (see Section 7.5).

(5) Perform the auto registration sensor sensitivity adjustment (see Section 7.8).

(6) Perform the auto registration sensor offset adjustment (see Section 7.9).

6.2.7 How to Replace the Push Roller Sensor

How to detach the push roller sensor

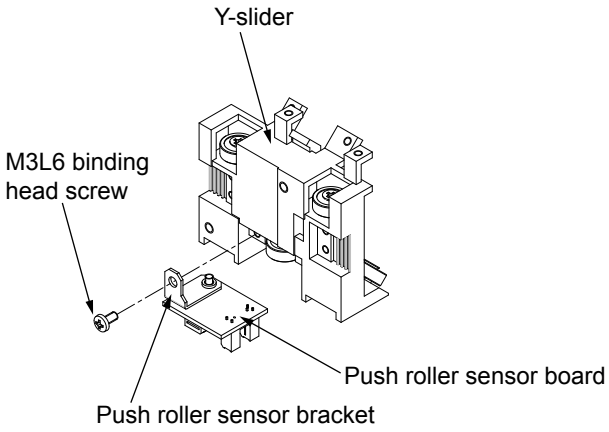
(1) Detach the center cover (see Subsection 6.1.3).

(2) Detach the pen block (see Subsection 6.2.5 or 6.2.6).

(3) Disconnect the push roller flexible cable from the Y-relay board.

(4) Remove the push roller flexible cable that is attached with double-sided adhesive tape to the Y-slider.

(5) Remove the M3L6 binding head screw attaching the push roller sensor bracket to the slider.



(6) Remove the M3L6 binding head screw attaching the push roller sensor board.

(7) Disconnect the push roller flexible cable from the push roller sensor board.

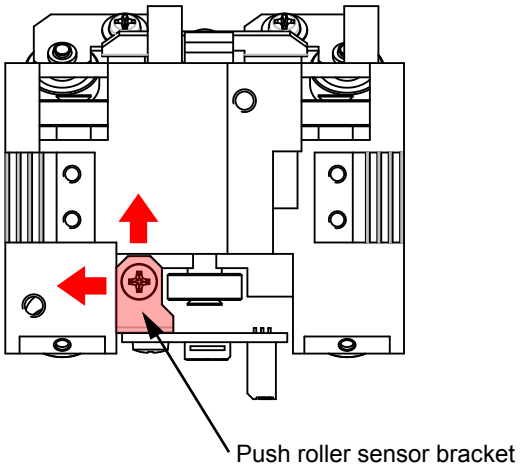
How to reinstall the push roller sensor

(1) Attach the push roller bracket to the push roller sensor board.

(2) Connect the push roller flexible cable to the push roller sensor board.

(3) Attach the push roller bracket to the Y-slider.

Fit the top and left edges of the push roller bracket to the Y-slider as shown in the figure below.



(4) Attach the pen block (see Subsection 6.2.5 or 6.2.6).

(5) Reattach the other parts in the reverse order in which they were detached.

6.2.8 How to Replace the Y-relay Board

How to detach the Y-relay board

(1) Detach the center cover (see Subsection 6.1.3).

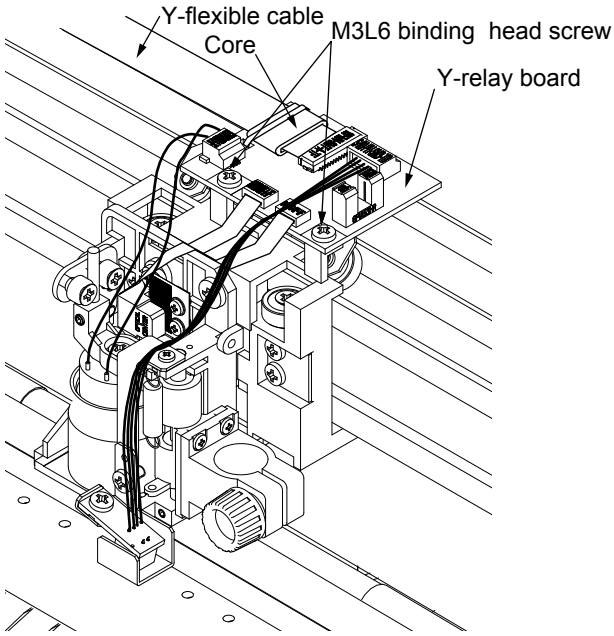
(2) Detach the pen block cover (see Subsection 6.2.5 or 6.2.6).

(3) Disconnect all the cables from the Y-relay board.

To disconnect the Y-flexible cable:

Remove the wiring harness tiewrap and detach the core attached with double-sided adhesive tape to the Y-relay board.

(4) Remove the push roller flexible cable attached with double-sided adhesive tape to the Y-slider.



(5) Remove the two M3L6 binding head screws attaching the Y-relay board.

How to reinstall the Y-relay board

(1) Reattach the Y-relay board in the reverse order in which it was detached.

6.2.9 How to Replace the Cutting Mat

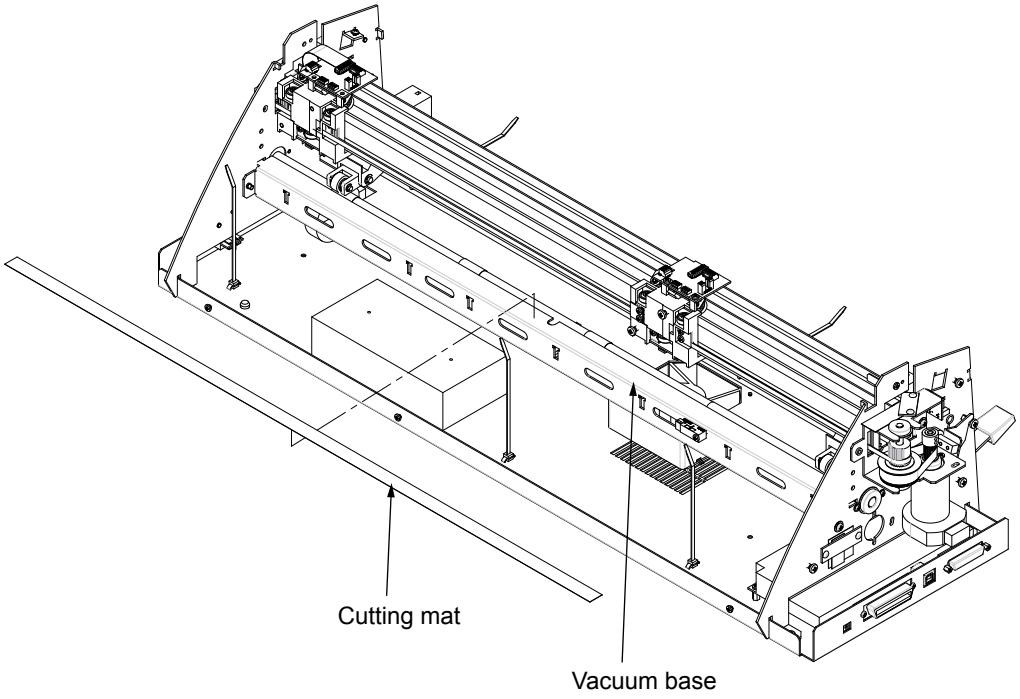
How to detach the cutting mat

(1) Detach the center cover (see Subsection 6.1.3).

(2) Detach the front guide (see Subsection 6.1.4).

(3) Detach the pen block (see Subsection 6.2.5 or 6.2.6).

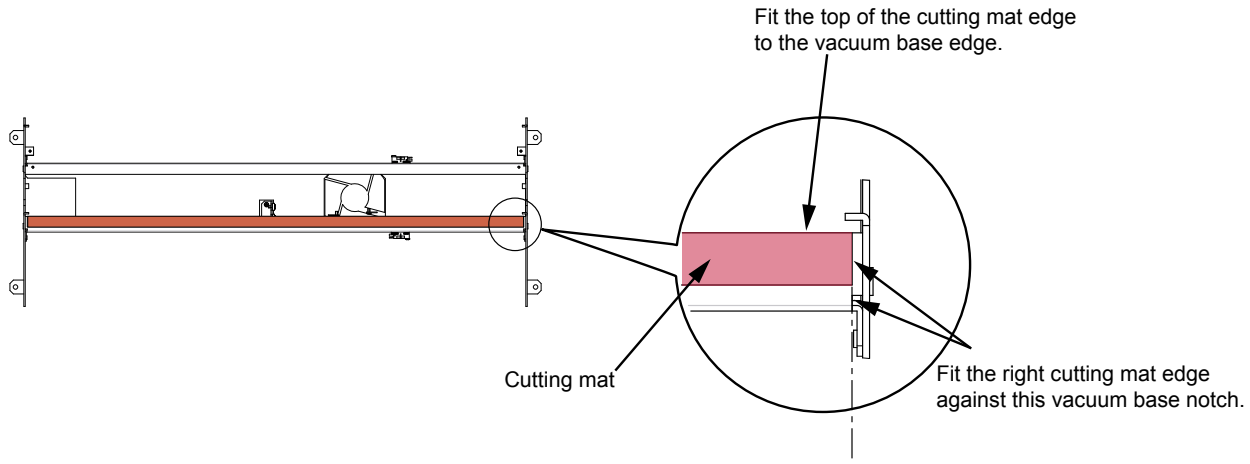
(4) Peel off the cutting mat from the vacuum base.



How to reinstall the cutting mat

(1) Clean the surface of the vacuum base with alcohol where the cutting mat was attached.

(2) Attach the new cutting mat to the vacuum base as shown below.


Fit the top of the cutting mat edge
to the vacuum base edge.
Cutting mat
Fit the right cutting mat edge
against this vacuum base notch.

(3) Make sure that there is no air between the cutting mat and the vacuum base.

(4) Attach the pen block (see Subsection 6.2.5 or 6.2.6).

(5) Reattach the other parts in the reverse order in which they were detached.

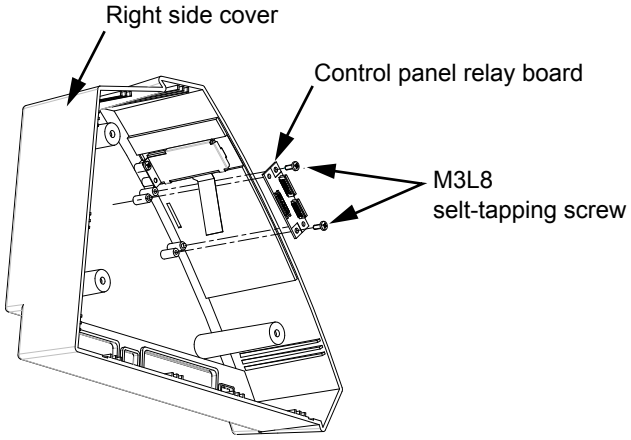
6.2.10 How to Replace the Control Panel Relay Board, LCD Assembly and Membrane Switch Panel

How to detach the control panel relay board, LCD assembly and membrane switch panel

(1) Detach the right side cover (see Subsection 6.1.1).

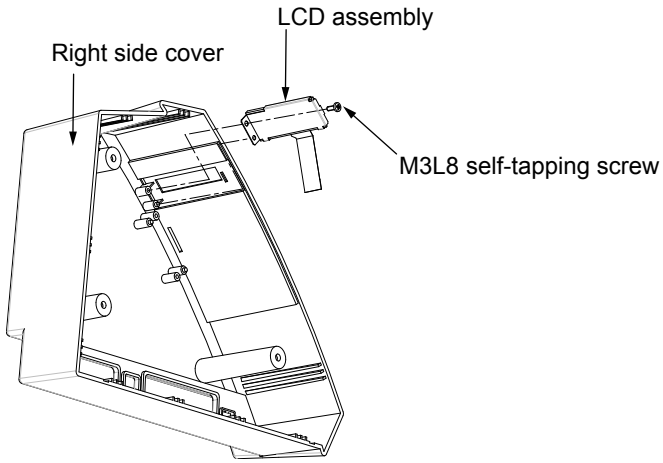
(2) Disconnect the flexible cables from connector J402 and J403 on the control panel relay board.

(3) Remove the two M3L8 self-tapping screws attaching the control panel relay board.



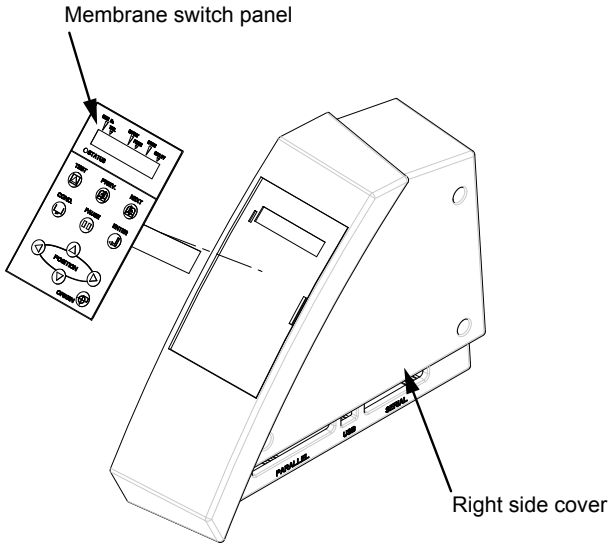
(4) Detach the control panel relay board from the right side cover.

(5) Remove the M3L8 self-tapping screw attaching the LCD assembly.



(6) Detach the LCD assembly from the right side cover.

(7) Peel off the membrane switch panel from the right side cover.



How to reinstall the control panel relay board, LCD assembly and membrane switch panel

(1) Clean the surface of the right side cover with alcohol where the membrane switch panel was attached.

(2) Reattach the LCD assembly to the right side cover.

(3) Attach the membrane switch panel to the right side cover so that it fits around the LCD window.

(4) Reattach the other parts in the reverse order in which they were detached.

6.2.11 How to Replace the Y-belt

How to detach the Y-belt

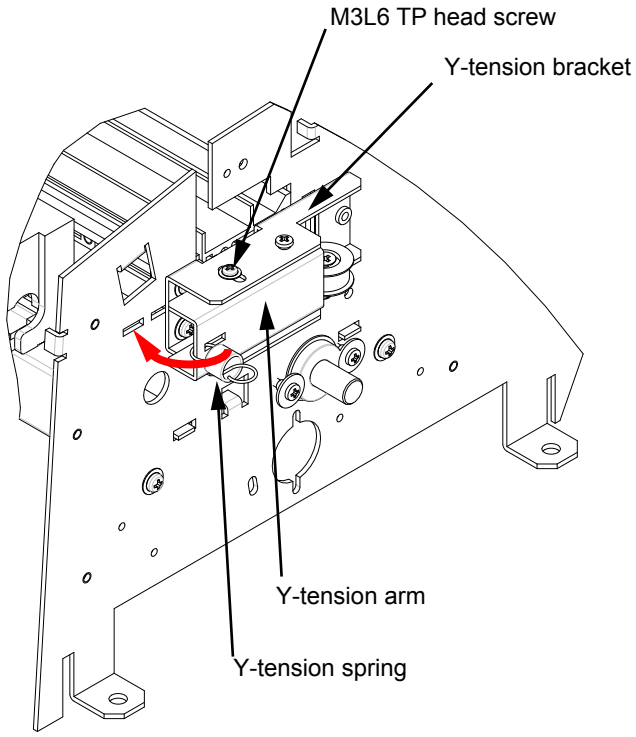
(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the center cover (see Subsection 6.1.3).

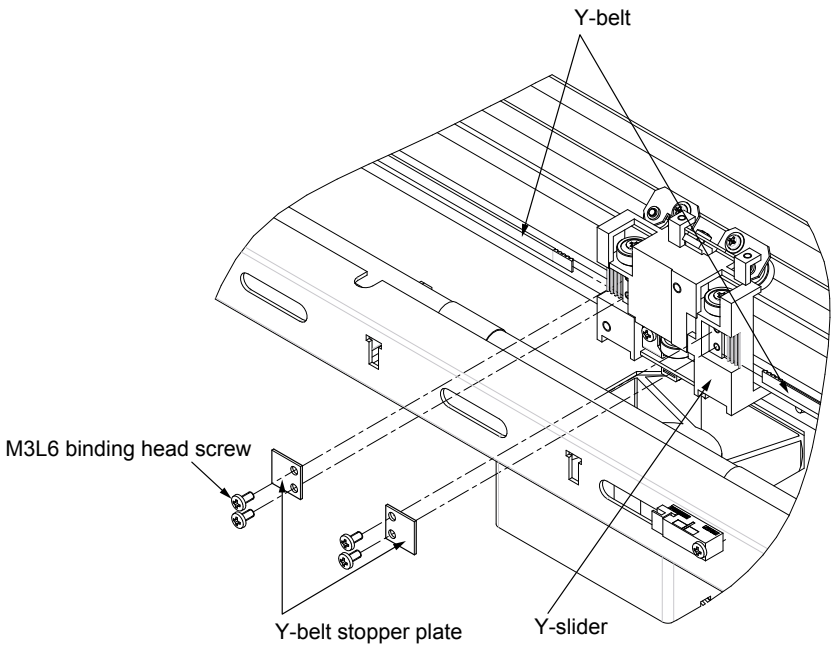
(3) Detach the pen block (see Subsection 6.2.5 or 6.2.6).

(4) Loosen the M3L6 TP head screw attaching the Y-tension arm.

(5) Push the Y-tension arm in the direction of the arrow as shown below, then detach the Y-tension spring hook from the left side plate.



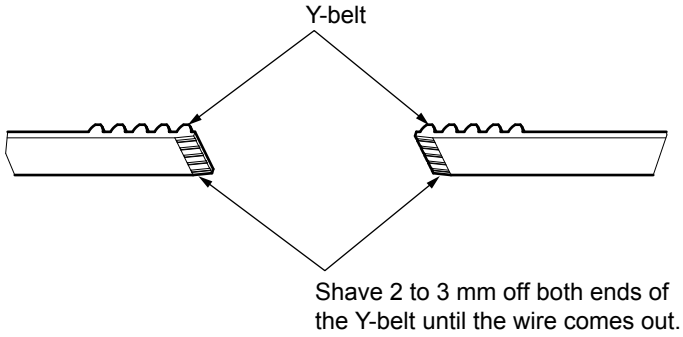
(6) Remove the four M3L6 binding head screws attaching the right and left Y-belt stopper plates to the slider.



(7) Detach the Y-belt from the unit.

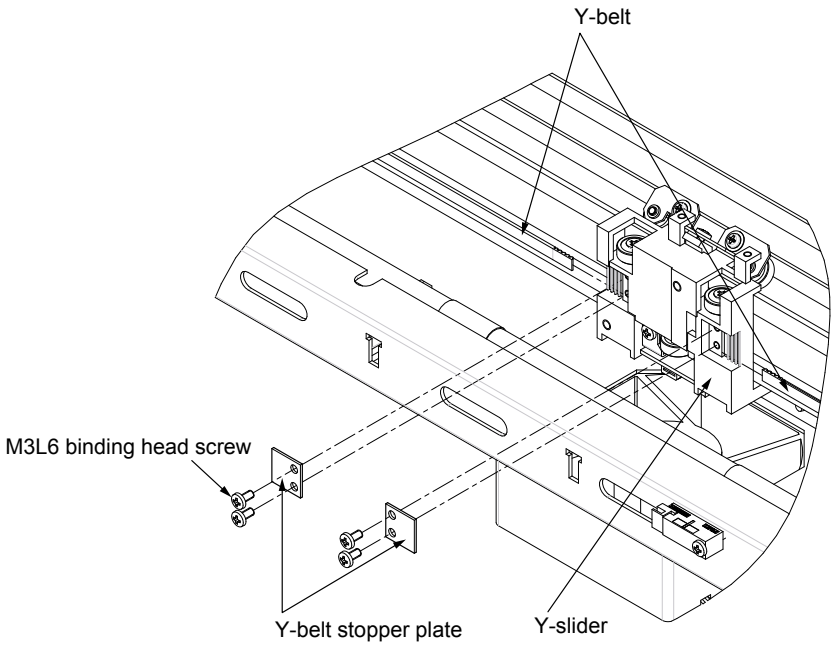
How to reinstall the Y-belt

(1) Shave 2 to 3 mm off both ends of the Y-belt until the wire comes out as shown below.



(2) Hang the Y-belt on both sides of the pulley.

(3) Attach both ends of the Y-belt to the Y-slider so that four notches of the Y-belt fit into the Y-slider, then attach with the Y-belt stopper plates removed in step (6) in the previous subsection.



(4) Attach the pen block (see Subsection 6.2.5 or 6.2.6).

(5) Reattach the other parts in the reverse order in which they were detached.

6.2.12 How to Replace the Y-motor (CE3000-60/120)

The CE3000-60 and CE3000-120 use the same Y-drive belt and Y-motor.

The CE3000-40 uses a different Y-drive belt and Y-motor from the CE3000-60 and CE3000-120.

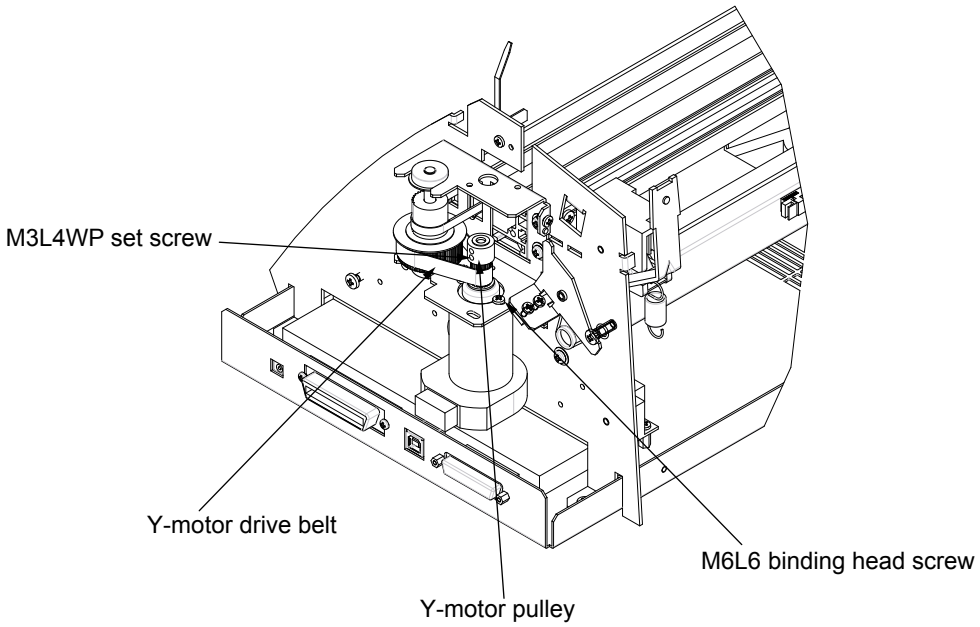
How to detach the Y-motor

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Detach the front guide (see Subsection 6.1.4 or Subsection 6.1.5).

(3) Disconnect the Y-motor cables from connector J8 and J11 on the main board.

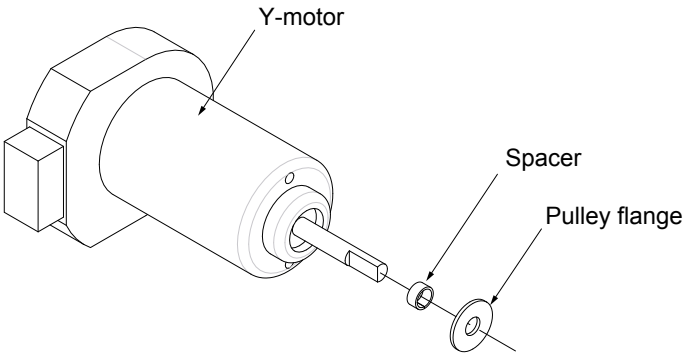
(4) Loosen the two M3L4WP set screws to detach the Y-motor pulley.



(5) Remove the two M3L6 binding head screws holding the Y-motor.

(6) Detach the Y-motor pulley, then detach the Y-motor.

(7) Detach the pulley flange and the spacer from the Y-motor.



How to reinstall the Y-motor

(1) Attach the pulley flange and the spacer to the new Y-motor.
(2) Attach the Y-motor to the Y-motor bracket.
(3) Hang the Y-drive belt on the Y-motor pulley and the Y-idler pulley.
(4) Attach the Y-motor pulley to the Y-motor.
(5) Tighten the two M3L4WP set screws that hold the Y-motor pulley.
(6) Spread a suitable quantity of Loctite 222 on the two M3L4WP set screws that hold the Y-motor pulley.
(7) Spread a suitable quantity of the Shinetu silicon grease G501 on the Y-motor pulley and Y-idler pulley.
(8) Use the force gauge to pull the Y-drive motor pulley flange with a 1.2 kg to 1.3 kg force.
(9) Tighten the two M3L6 binding head screws that hold the Y-motor.
(10) Move the pen block and check the tension of the Y-drive belt.
(11) Reattach the other parts in the reverse order in which they were detached.

6.2.13 How to Replace the Y-motor (CE3000-40)

The CE3000-60 and CE3000-120 use the same Y-drive belt and Y-motor.

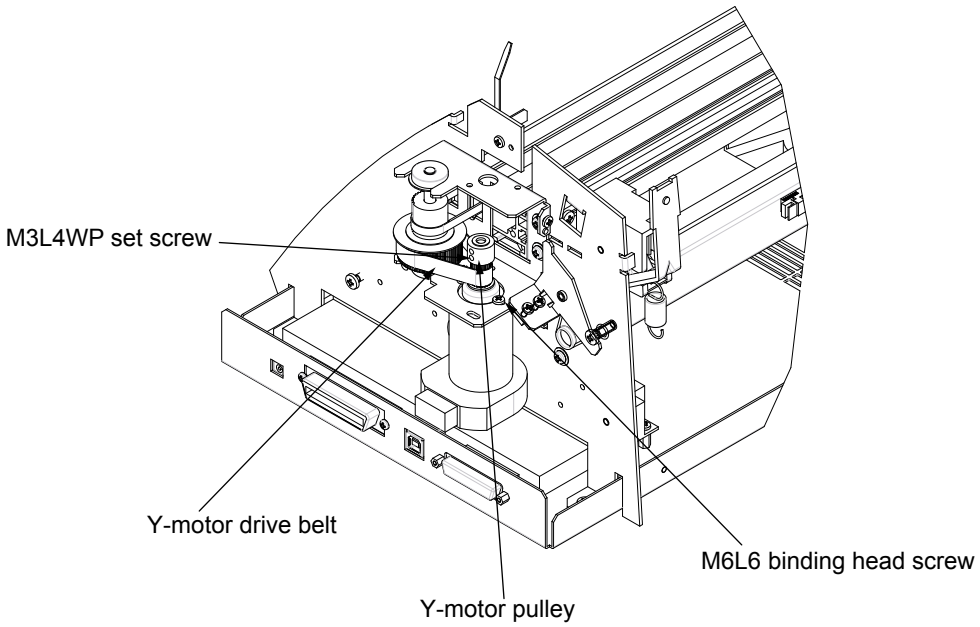
The CE3000-40 uses a different Y-drive belt and Y-motor from the CE3000-60 and CE3000-120.

How to detach the Y-motor

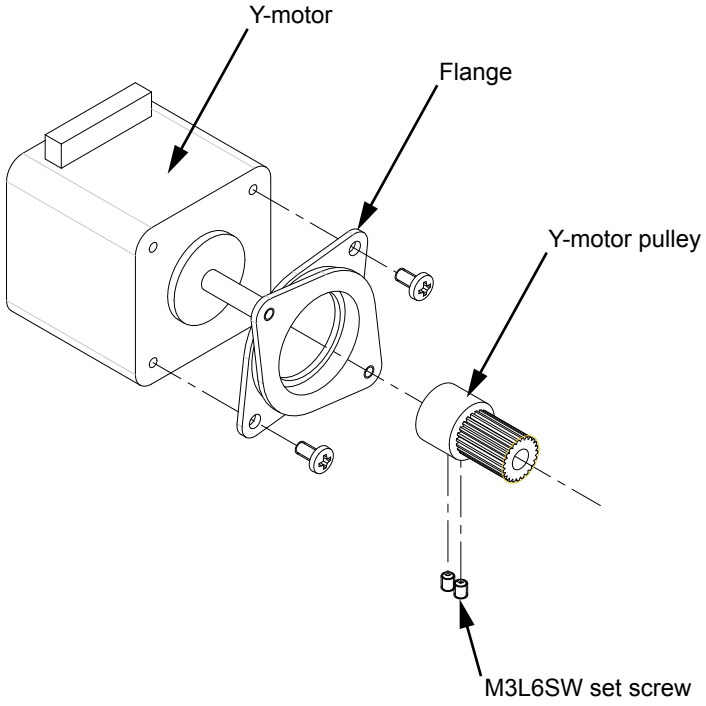
(1) Detach the right side cover (see Subsection 6.1.1).

(2) Disconnect the Y-motor cable from its connector on the main board.

(3) Remove the two M3L6 binding head screws holding the Y-motor.



(4) Loosen the two M3L4WP set screws to detach the Y-motor pulley.



(5) Remove the two M3L6 binding head screws holding the flange.

(6) Detach the flange from the Y-motor.

How to reinstall the Y-motor

(1) Attach the flange to the new Y-motor.
(2) Attach the Y-motor to the Y-motor bracket.
(3) Hang the Y-drive belt on the Y-motor pulley.
(4) Attach the Y-motor pulley to the Y-motor.
(5) Tighten the two M3L4WP set screws holding the Y-motor pulley.
(6) Spread a suitable quantity of Loctite 222 on the M3L4WP set screw that holds the Y-motor pulley.
(7) Spread a suitable quantity of the Shinetu silicon grease G501 on the Y-motor pulley and Y-idler pulley.
(8) Use the force gauge to pull the Y-drive motor pulley flange with a 1.2 kg to 1.3 kg force.
(9) Tighten the two M3L6 binding head screws holding the Y-motor.
(10) Move the pen block and check the tension of the Y-drive belt.
(11) Reattach the other parts in the reverse order in which they were detached.

6.2.14 How to Replace the X-motor

All models use a different X-motor.

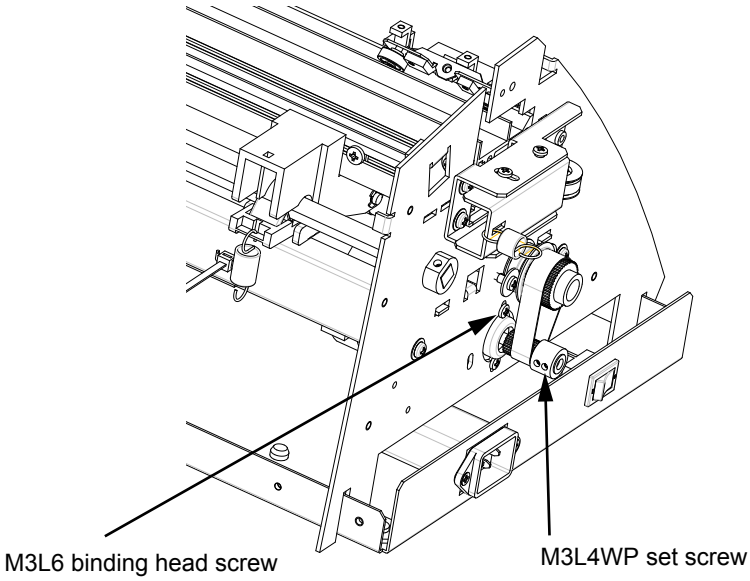
How to detach the X-motor

(1) Detach the left side cover (see Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.4, or Subsection 6.1.5).

(2) Detach the rear guide (see Subsection 6.1.6).

(3) Loosen the two M3L4WP set screws holding the X-motor pulley then detach the X-motor pulley.



(4) Remove the two M3L6 binding head screws holding the X-motor then detach the X-motor.

(5) Disconnect the X-motor cable from its connector(s) on the main board.

CE3000-40: ..... Disconnect the cable from connector J15 on the main board.

CE3000-60: ..... Disconnect the cables from connector J7 and J10 on the main board.

CE3000-120: ..... Disconnect the cables from connector J1102 and J1104 on the Y-motor relay board.

(6) Remove the wiring harness tie-wrap holding the X-motor harness and detach the X-motor.

(7) If you are replacing the X-motor of the CE3000-40, detach the flange from the X-motor.

How to reinstall the X-motor

(1) If you are replacing the X-motor of the CE3000-40, attach the flange to the new X-motor.

(2) Attach the X-motor to the left side plate.

(3) Connect the X-motor cable to its connector(s) on the main board.

CE3000-40: ..... Connect the cable to connector J15 on the main board.

CE3000-60: ..... Connect the cables to connector J7 and J10 on the main board.

CE3000-120: ..... Connect the cables to connector J1102 and J1104 on the Y-motor relay board.

(4) Fasten the X-motor harness with the wiring harness tie-wrap.

(5) Hang the X-drive belt on the X-drive pulley.

(6) Attach the X-motor pulley to the X-motor.

(7) Tighten the two M3L4WP set screws holding the X-motor pulley.

(8) Spread a suitable quantity of Loctite 222 on the M3L4WP set screw holding the X-motor pulley.

(9) Use the force gauge to pull the X-drive motor pulley flange with a 1.2 kg to 1.3 kg force.

(10) Tighten the mounting screws that hold the X-motor.

(11) Spread a suitable quantity of the Shinetu silicon grease G501 on the X-motor pulley.

(12) Move the X-drive pulley and check the tension of the X-drive belt.

(13) Reattach the other parts in the reverse order in which they were detached.

6.2.15 How to Replace the Y-flexible Cable

How to detach the Y-Flexible Cable

(1) Detach the right side cover (see Subsection 6.1.1).

(2) Detach the center cover (see Subsection 6.1.3).

(3) Detach the front guide (see Subsection 6.1.4, or Subsection 6.1.5).

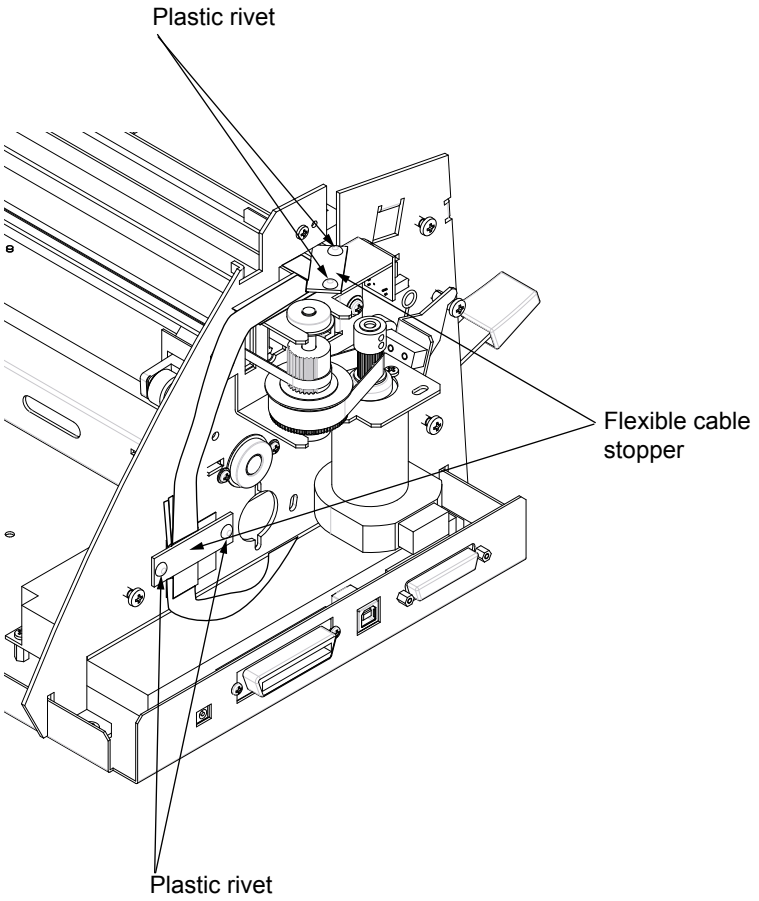
(4) Remove the wiring harness tie-wrap holding the Y-flexible cable and the core on the Y-relay board.

(5) Detach the core attached with double-sided adhesive tape to the Y-relay board.

(6) Disconnect the Y-flexible cable from connector J501 on the Y-relay board.

(7) Disconnect the Y-flexible cable from connector J1 on the main board.

(8) Remove the four plastic rivets holding the two flexible cable stoppers.



(9) Remove the Y-flexible cable attached with double-sided adhesive tape to the Y-rail.

How to reinstall the Y-flexible cable

(1) Clean the surface of the Y-rail with alcohol to remove any glue from the double-sided adhesive tape that was attached the Y-flexible cable.

(2) Affix two pieces of double-sided adhesive tape to the flexible cable guide of the Y-rail. The first piece of tape should start at the right end of the Y-rail. The position of the second piece of tape depends on the model.

Size of the double-sided adhesive tape:

10 mm wide, 15 mm long for the first piece of tape (Nitto #500)

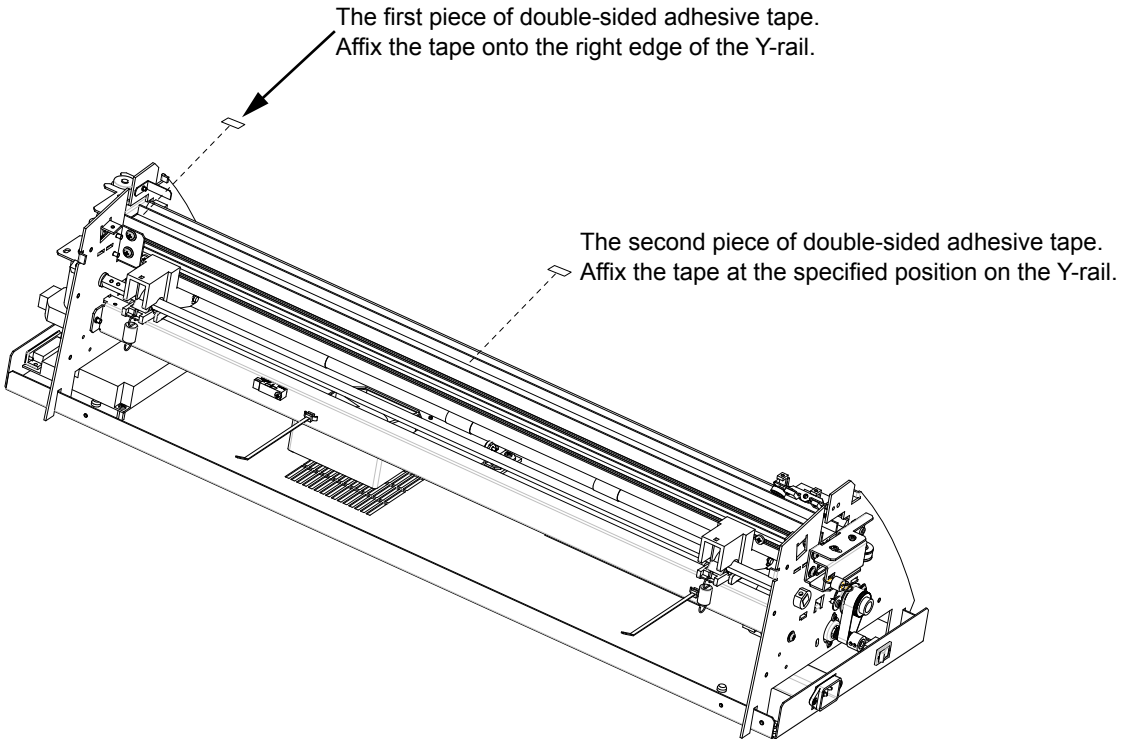
10 mm wide, 50 mm long for the second piece of tape (Nitto #500)

Position of the second piece of tape:

CE3000-40: about 260 mm from the right end of the Y-rail

CE3000-60: about 360 mm from the right end of the Y-rail

CE3000-120: about 660 mm from the right end of the Y-rail

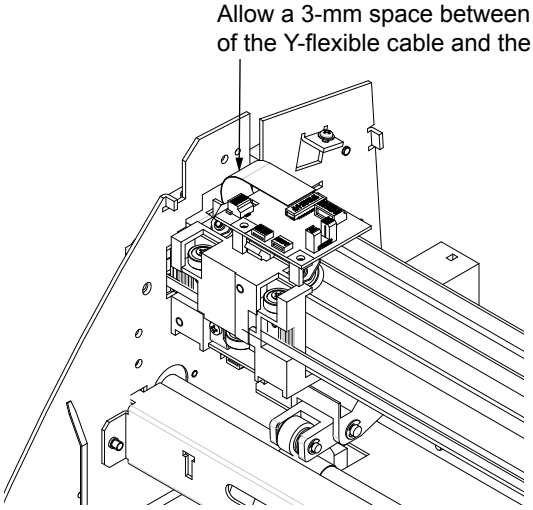

The first piece of double-sided adhesive tape.
Affix the tape onto the right edge of the Y-rail.
The second piece of double-sided adhesive tape.
Affix the tape at the specified position on the Y-rail.

(3) Insert the Y-flexible cable into the core and connect the Y-flexible cable to connector J501.

(4) Attach the core to the Y-relay board using double-sided adhesive tape.

(5) Move the pen block to the left end.

(6) Fit the Y-flexible cable into the Y-rail as shown below. The Y-flexible cable shouldn't touch the left side plate. Allow a 3-mm space between the left end of the Y-flexible cable and the left side plate.



(7) Secure the Y-flexible cable onto the flexible cable guide of the Y-rail using double-sided adhesive tape.

(8) Reattach the other parts in the reverse order in which they were detached.

6.2.16 How to Replace the Vacuum Fan

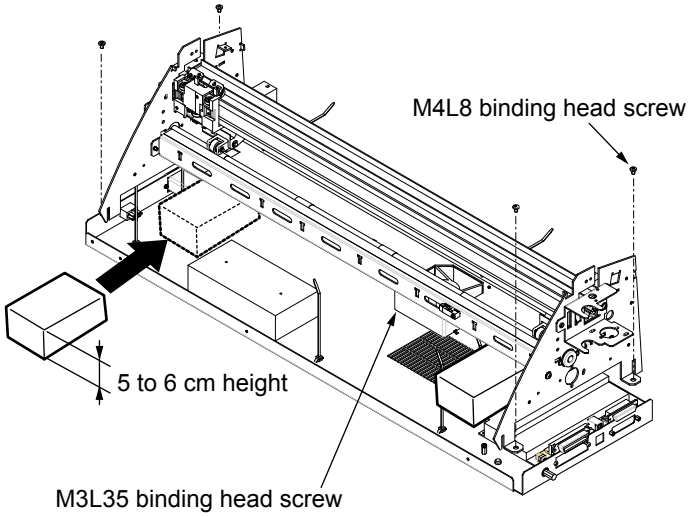
How to detach the vacuum fan

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.4, or Subsection 6.1.5).

(3) Detach the rear guide (see Subsection 6.1.6).

(4) Remove the four M4L6 binding head screws holding the main unit to the chassis.



(5) Insert some boxes between the main unit and the chassis to lift the main unit up about 5 to 6 cm from the chassis.

(6) Remove the harness tie-wrap holding the vacuum fan cables.

(7) Disconnect the vacuum fan from its connector.
CE3000-40 and CE3000-60: connector J9 on the main board.
CE3000-120: connector J1202 or J1203 on the fan relay board.

(8) Use a short screwdriver to remove the two M3L35 binding head screws holding the vacuum fan.

(9) Detach the vacuum fan from the main unit.

How to reinstall the vacuum fan

(1) Reattach in the reverse order in which it was detached.

6.2.17 How to Replace the Main Board

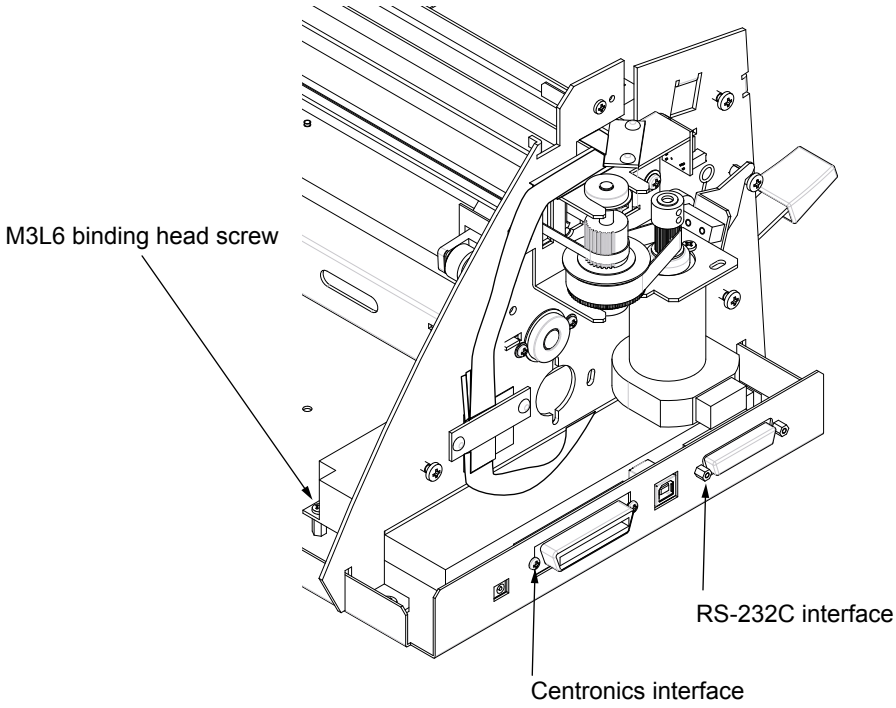
How to detach the main board

(1) Detach the right and left side covers (see Subsection 6.1.1 and, Subsection 6.1.2).

(2) Detach the front guide (see Subsection 6.1.4, or Subsection 6.1.5).

(3) Detach the rear guide (see Subsection 6.1.6).

(4) Remove the two screws holding the Centronics interface connector to the chassis.



(5) Remove the two screws holding the RS-232C interface connector to the chassis.

(6) Disconnect all the cables and flexible cables from their connectors on the main board.

(7) Remove the four M3L6 binding head screws holding the main board.

(8) Detach the main board from the chassis.

How to reinstall the main board

(1) Reattach in the reverse order in which it was detached.

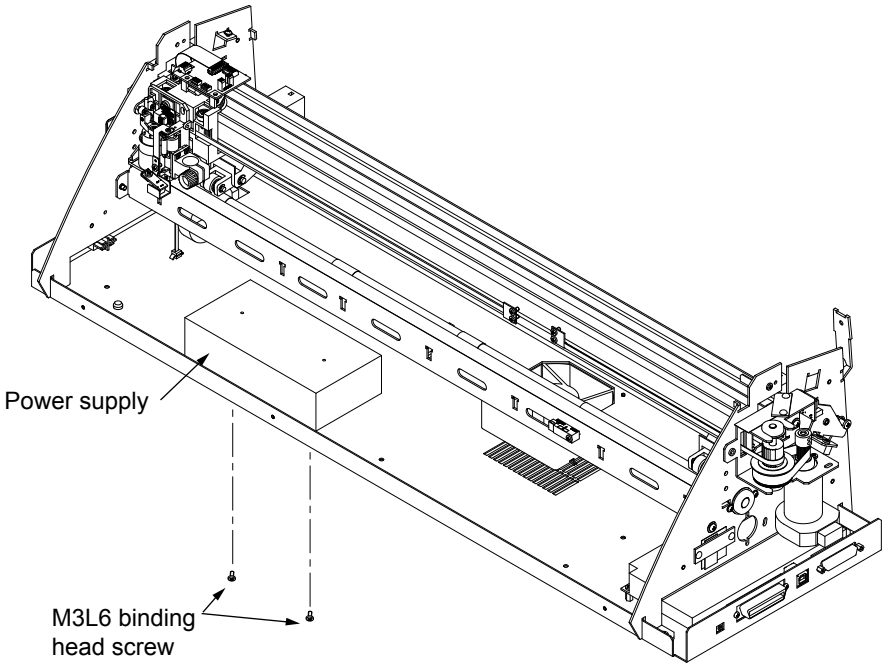
(2) Perform any adjustments required (see Section 7.2).

6.2.18 How to Replace the Power Supply

How to detach the power supply

(1) Detach the center cover (see Subsection 6.1.3).

(2) Disconnect the cables from the connectors CN1 and CN2.



(3) Remove the two M3L6 binding head screws holding the power supply to the bottom of the chassis.

(4) Detach the power supply from the chassis.

How to reinstall the power supply

(1) Reattach in the reverse order in which it was detached.

(2) Measure the output voltage at connector CN2 between pin 1 and pin 2 on the power supply.

(3) If the measured voltage is not 24V±5%, then adjust the trimmer RV200 on the power supply to obtain the correct voltage.

6.2.19 How to Replace the Drive Roller

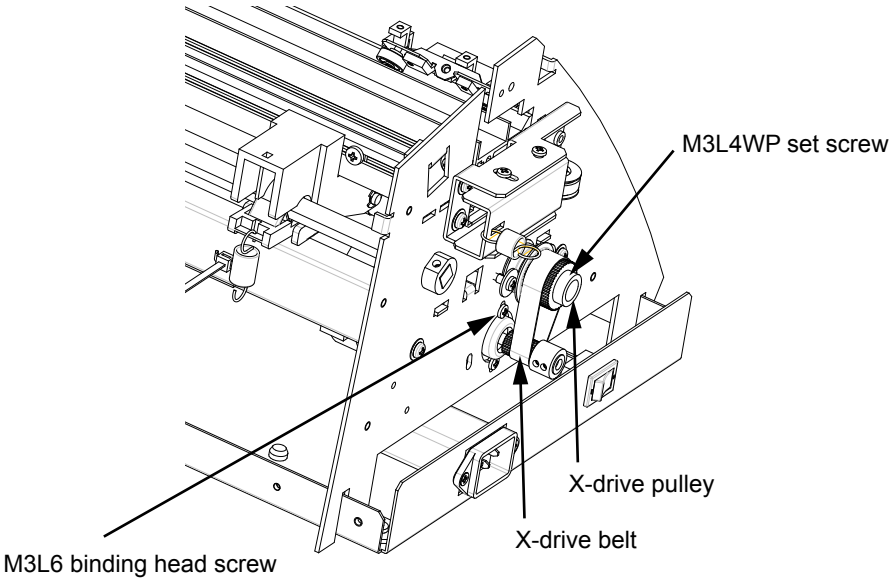
How to detach the drive roller

(1) Detach the right and left side covers (see Subsection 6.1.1 and Subsection 6.1.2).

(2) Detach the center cover (see Subsection 6.1.3).

(3) Detach the front guide (see Subsection 6.1.4, or Subsection 6.1.5).

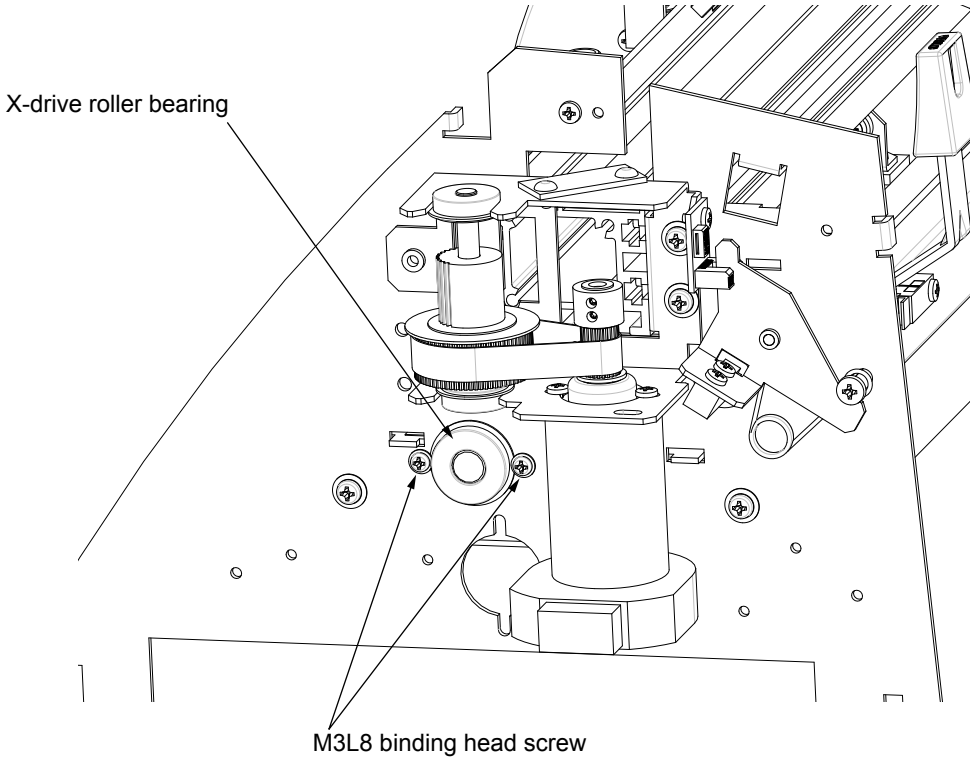
(4) Loosen the two M3L6 binding head screws holding the X-motor.



(5) Push up the X-motor from inside the left side plate then remove the X drive belt from the X-drive pulley.

(6) Loosen the two M3L4WP set screws holding the X-drive pulley and detach the X-drive pulley from the drive roller.

(7) Remove the two M3L6 binding screws holding the X-drive roller bearing with a flange.



(8) Slide out the X-drive roller from the unit. There is a bearing stopper flange and a bush on the left side plate; don't miss those parts when removing the X-drive roller.

How to reinstall the drive roller

(1) Reattach in the reverse order in which it was detached.

(2) Spread a suitable quantity of Loctite 222 on the M3L4WP set screw holding the X-drive pulley.

(3) Use the force gauge to pull the X-drive motor pulley flange with a 1.2 kg to 1.3 kg force.

(4) Tighten the mounting screws that hold the X-motor.

(5) Spread a suitable quantity of the Shinetu silicon grease G501 on the X-motor pulley.

(6) Move the X-drive pulley and check the tension of the X-drive belt.

(7) Reattach the other parts in the reverse order in which they were detached.

7. ELECTRICAL ADJUSTMENTS

7.1 DIP Switch Settings

Factory presets (Normal Mode)

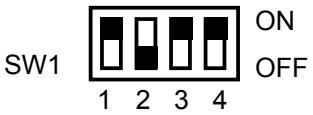
CE3000-120 and CE3000-60,CE3000-40 with moving coil PL-326B.

Moving coil PL-326B

CE3000-60 and CE3000-40 with new moving coil PL-603

Moving coil PL-603

NOV-RAM Clear



7.2 List of Items Requiring Readjustment

If you replaced one of the units listed in the table below or altered their sensor positions, be sure to readjust the corresponding items.

Item \ Unit name	Main board	Power supply	Pen Block	Pinch roller sensor	X,Y motor	Drive roller	X,Y Motor drive belt	Auto registration mark sensor
NOV-RAM clear	M							
Pen force adjustment	M		M					
Distance adjustment	M					M	M	
Auto registration mark sensor adjustment	N		N	N				M
Gain adjustment	M				M			
Menu setting	N							
Firmware update	M							
Belt tension adjustment						M	M	
Push roller pressure adjustment						M		
Output voltage of power supply		M						

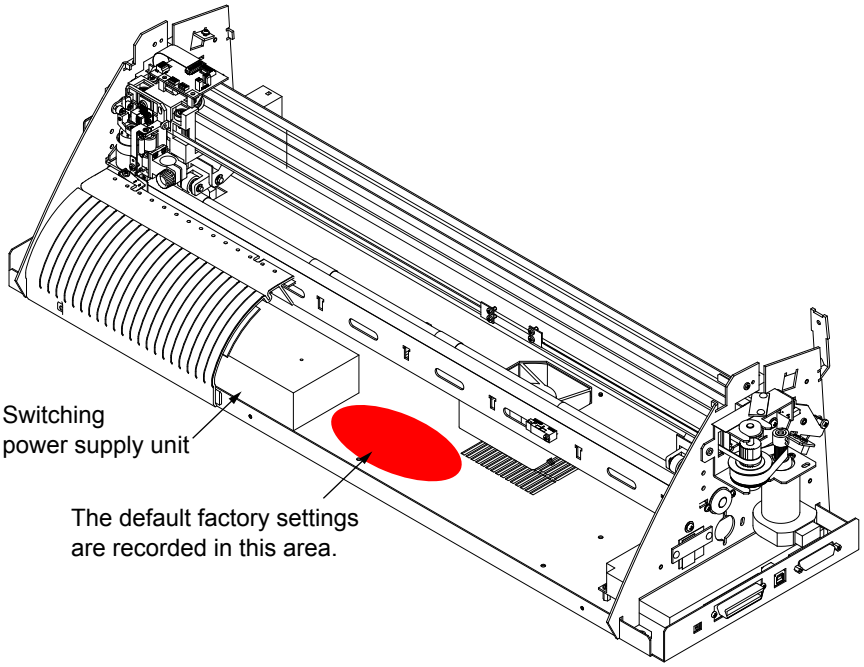
No mark: Unnecessary M: Must always be adjusted N: To be adjusted as necessary

Note: The main board must have the latest version of firmware unless otherwise specified.

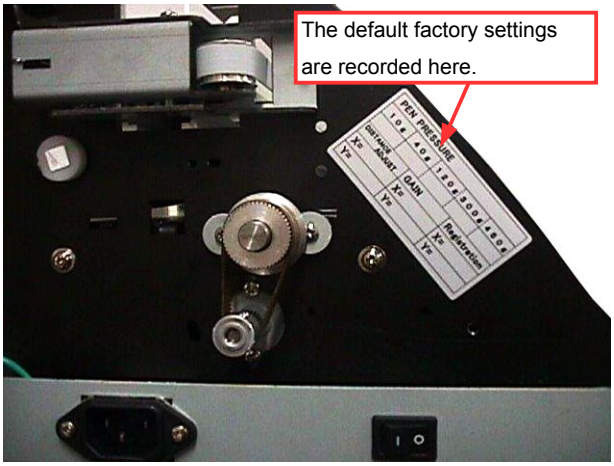
7.3 Explanation of the Values of the Main Board Settings

(Default factory settings)

The default factory settings are recorded in the location shown below.



The default factory settings are recorded on the left side plate shown below from S/N309xxxxx.



The contents of an example record are shown below.

25 47 100 228 346

X= 0 X= 80 X= -

Y= 4 Y= 50 Y= -

326B

Explanation of the values

Pen force values				
10 g	40g	120 g	300 g	450 g

Distance adjustment values	Gain adjustment values	Auto registration mark position adjustment values
X	X (60 and 120 only)	X (when the option is installed)
Y	Y (60 and 120 only)	Y (when the option is installed)

Moving coil lot no. (Only for first lot)

You can input the same values when you have replaced the main board without making any adjustments.

If you have changed any values by making adjustments, record those values for the next maintenance check.

7.4 Clearing the Non-Volatile RAM

When you replace the main board, you must clear the Non-Volatile RAM (NOV-RAM).

If you clear the Non-Volatile RAM, you will lose the setup parameters for each adjustment.

Input the adjustment values to the main board after you clear the Non-Volatile RAM.

How to clear the Non-Volatile RAM.

(1) Set SW1 to the NOV-RAM clear mode as shown below.

(2) Turn on the power to the plotter.

(3) The NOVRAM INIT. menu appears. The plotter immediately starts to clear the parameters on NOV-RAM, and then sets the default values.

```
NOVRAM INIT.
```

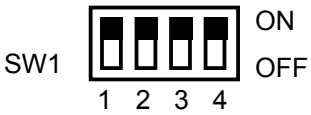
(4) When the programming is complete, the NOVRAM INIT. END menu appears.

```
NOVRAM INIT. END
```

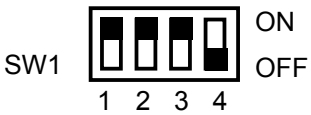
(5) Turn off the power to the plotter.

(6) Return the SW1 setting to normal mode as shown below.

CE3000-120 and CE3000-60,CE3000-40 with moving coil PL-326B.



CE3000-60 and CE3000-40 with new moving coil PL-603



7.5 Adjusting the Pen Force

This adjustment will set the pen force.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the moving coil and/or the pen block assembly, you must adjust the pen force using the following procedure.

How to adjust the pen force

(1) Mount a 0.9 mm diameter cutter pen in the pen holder.

(2) Load a sheet of paper in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the media mode.

(5) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(6) Press the NEXT key until the following menu is displayed.

```
PEN PRES ADJUST
```

(7) Press the ENTER key to display the menu shown below.

```
PRS 10g D/A= 20
```

(8) The pen is lowered. If you have replaced the moving coil and/or the pen block assembly, use the force gauge to measure the actual force. If you have only replaced the main board, input the adjustment values that were recorded.

Use the UP ARROW key or DOWN ARROW key to change the force setting. The number on the LCD will increase or decrease. If you have replace the moving coil and/or the pen block assembly, measure the actual pen force again.

If you replaced the moving coil and/or the pen block assembly, adjust the 10g-pen force. If the measured value is within the specification range (10±2g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(9) Adjust the 40g-pen force. If the measured value is within the specification range (40±4g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(10) Adjust the 120g-pen force. If the measured value is within the specification range (120±10g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(11) Adjust the 300g-pen force. If the measured value is within the specification range (300±20g) or if you have input the recorded value, press the ENTER key to store the setting. The next specified pen force appears.

(12) Adjust the 450g-pen force. If the measured value is within the specification range (450±20g) or if you have input the recorded value, press the ENTER key to store the setting.

Note: When adjusting the pen force, it is important to do it quickly. Delaying the pen force adjustment changes the temperature of the actuator and causes artificially lower readings. When this happens the actual pen force may be higher than the specification. This is especially true for the upper pen force adjustment.

(13) Press the NEXT key to complete this adjustment.

Specification of the actual pen force

Specified pen force	Actual force range
10g	8 to 12g
40g	36 to 44g
120g	110 to 130g
300g	280 to 320g
450g	430 to 470g

7.6 Adjusting the Distance Accuracy

This adjustment will set the distance accuracy.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the grit roller, you must adjust the distance accuracy using the following procedure.

How to adjust the distance accuracy

(1) Mount a Ceramic pen (0.2 mm tip size) in the pen holder.

(2) Load a sheet of A2 size paper or ANSI C size paper in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

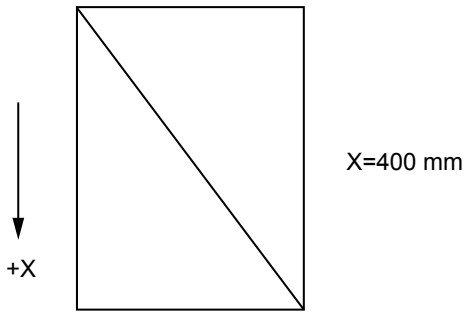
(4) Select the media mode.

(5) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(6) Press the ENTER key to start the test. The plotter immediately plots the test pattern, and the following menu appears.

```
DADJ.X=  0 Y=  0
```



(7) Remove the paper and measure the X and Y-axis distance. If you have replaced the main board only, use the recorded values.

(8) Input the values using the POSITION keys.
Press the LEFT or RIGHT ARROW key to select the Y-axis or X-axis distance adjustment.
Press the UP or DOWN ARROW key to change the Y-axis or X-axis distance adjustment value.
The formula of the input value is as follows:
Input value for X-axis = (400mm - measured X distance) x 10
Input value for Y-axis = (300mm - measured Y distance) x 10
For example:
If you measured 299.0mm for the Y-axis then input 10 for the adjustment value.
Adjustable range: -9.9 mm to +9.9mm , 0.1-mm steps

(9) Press the ENTER key to store the setting. The following menu appears.

```
XY LENG L=500.00
```

(10) If you wish to complete this adjustment, press the NEXT key. If you wish to plot the adjusted test pattern, press the ENTER key.

7.7 Inputting the Servo Gain

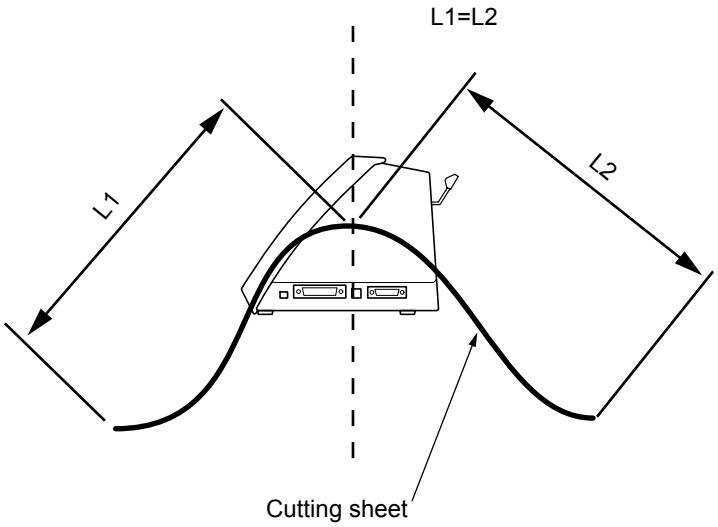
It is not necessary to perform this procedure for the CE3000-40.

If you replace the main board, use the following procedure to input the recorded adjustment values.

How to input the servo gain

(1) Mount a 0.9 mm diameter cutter pen in the pen holder.

(2) Load a cutting sheet in the plotter as shown in the figure below.
Make sure that the front and rear lengths of the cutting sheet are the same length.



(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the ROLL2 media mode.

(5) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(6) Press the NEXT key until the following menu is displayed.

```
SET GAIN
```

(7) Press the ENTER key to display the menu shown below.

```
GAIN X= 80 Y= 50
```

(8) Input the values that are recorded on the chassis. (default factory settings)
Press the UP or DOWN ARROW key to change the X-Gain value.
Press the LEFT or RIGHT ARROW key to change the Y-Gain value.

(9) Press the ENTER key to store the setting and complete the adjustment.

7.8 Setting the Auto-Registration Mark Sensor Option

CE3000-40/60/120/Qe60

If you have the Auto-registration mark sensor option, you must set the MARK OPTION mode to ON.

How to set the auto-registration mark sensor option

(1) Turn on the power while pressing the TEST and ENTER keys.

(2) Select the media mode.

(3) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(4) Press the NEXT key until the following menu is displayed.

```
MARK OPTION
```

(5) Press the ENTER key to display the menu shown below.

```
MARK OPTION OFF
```

(6) Press the UP or DOWN ARROW key to change this setting to ON.

(7) Press the ENTER key to store the setting. This completes the setting.

7.9 Adjusting the Auto-Registration Mark Sensor Sensitivity

If you have the Auto-registration mark sensor option, you need to adjust the sensitivity.

How to adjust the auto-registration mark sensor sensitivity

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter. The paper color must be white, and it is recommended that high-quality paper made for ink-jet printers be used.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(5) Press the NEXT key until the following menu is displayed.

```
MARK SENSOR TEST
```

(6) Press the ENTER key to display the menu shown below.

```
■■■■■          50
```

This level meter shows output from the mark sensor. Adjust VR1 on the main board to set the output level from 65% to 70%. When making this adjustment, make sure that the media does not rise up from the cutting mat surface.

(7) Press the NEXT key to complete this adjustment.

7.10 Adjusting the Offset of the Auto-Registration Mark Sensor

CE3000-40/60/120

How to set the auto-registration mark sensor option

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter. The paper must have a printed target cross mark. (Print out the target sheet (see page 7-11) on a printer.) The specification of the cross mark is 30 mm line length, and 0.3 to 0.5 mm line width.

(2) Mount a water-based ballpoint pen in the plotter.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the media mode.

(5) Set the plotting conditions to the following settings:
Force: 12, Speed: 40, Quality: 1, Tool: Pen

(6) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

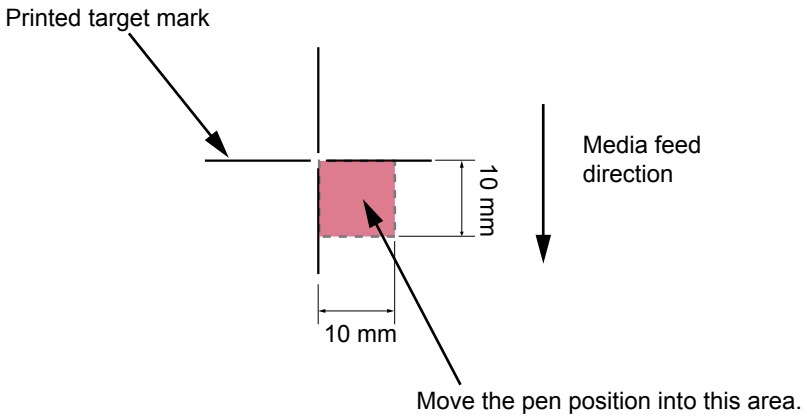
(7) Press the NEXT key until the following menu is displayed.

```
MARK SENS POS
```

(8) Press the ENTER key to display the menu shown below.

```
MARK ADJ SCAN
```

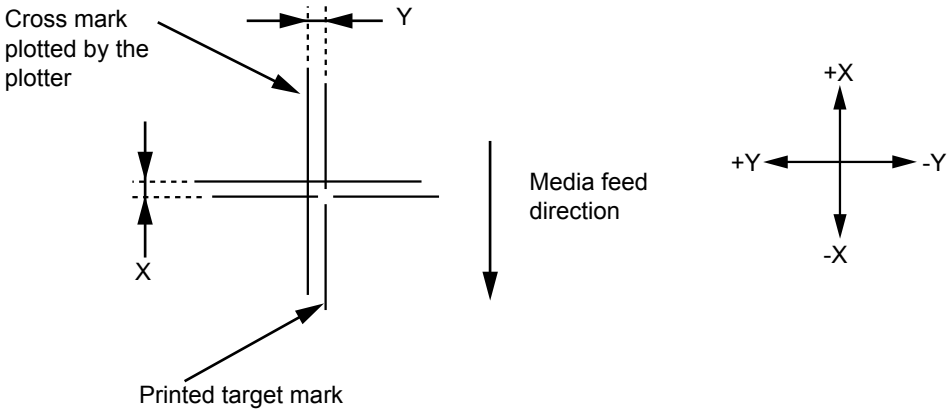
(9) Use the Position keys to move the pen position to the printed cross mark area shown below.



(10) Press the ENTER key to scan the printed cross mark. The plotter then plots a new cross mark based on the reading of the printed cross mark.
The following menu is displayed.

```
X=00.0  Y=00.0
```

(11) Measure the offset between the printed cross mark and plotted cross mark.



(12) Set the offset value. Press the UP ARROW key or DOWN ARROW key to change the number.
Press the LEFT ARROW key or RIGHT ARROW key to change the digits of a number.
Press the ORIGIN key to select the X or Y direction.
Press the CONDSION key tp select the + or - direction.

(13) Press the ENTER key to store the setting.

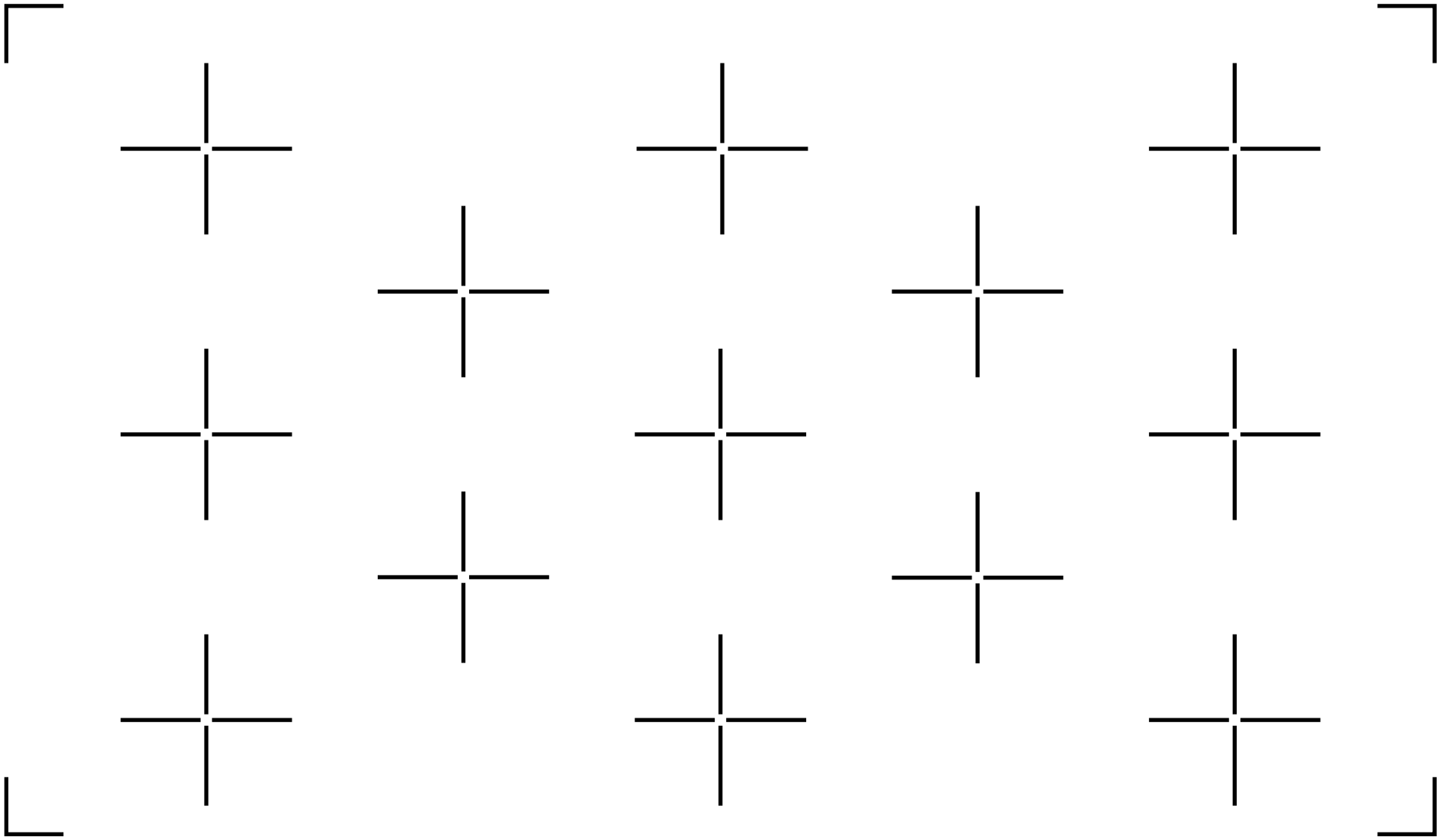
(14) Verify that the plotted cross mark line is located at the center of the printed cross mark line. Move the pen to the printed cross mark area. Press the ENTER key to repeat the scan as described in step (10).

```
MARK ADJ SCAN
```

(15) Repeat steps (9) to (14) if the location of the plotted cross mark is incorrectly positioned. If the location of the plotted cross mark is in the correct position, press the NEXT key then turn off the power.

AUTO REGISTRATION MARK TARGET

The specification of the cross mark is 30mm line length, and 0.3 to 0.5mm line width.



7.11 Updating the System Firmware

To update the system firmware you need to have the following files. In addition, you need to use a computer and Centronics cable.

- CE3040.X :CE3000-40 firmware
- CE3060.X :CE3000-60 firmware
- CE3120.X :CE3000-120 firmware
- CE3120ap.X :CE3000-120AP firmware
- Pro.X :CE3000-40CRP firmware
- SEND.EXE :Utillity to transfer files using Windows®
- SENDB.EXE :Utillity to transfer files using DOS

Note: The system firmware version later than 5.00 is use for CE3000-40Mk2, CE3000-60Mk2 and CE3000-120Mk2. You can't update to the CE3000Mk2 system firmware when your system firmware of the plotter is older version than 5.00.

How to update the system firmware

(1) Connect the computer and the CE3000 via the Centronics interface.

(2) Turn on the power while pressing the RIGHT ARROW position key and the LEFT ARROW position key to display the menu shown below.

```
PASSWORD ■■■■
```

(3) Press the password, the UP ARROW (+X) position key, the DOWN ARROW (-X) position key, the RIGHT ARROW (+Y) position key, and the LEFT ARROW (-Y) position key in order to display the menu below.

```
CENTRO GET-ACK
```

This enables you to select the timing of the Centronics interface.
Normally, there is no need to change this setting. If you cannot transfer data correctly via the Centronics interface, use the UP ARROW (+X) position key or the DOWN ARROW (-X) position key to change this timing.

(4) Press the ENTER key to display the menu shown below.

```
PLEASE SEND PRG
```

(5) Send firmware to the plotter from the computer.
Drag and drop the firmware file onto the SEND.EXE icon when using Windows®.
For DOS mode, use SENDB.EXE as shown below.
(For example: CE3000-120)
>SENDB CE3120.X

(6) The following menu is displayed while data is being received.

```
 **KB RECEIVED
```

(7) The plotter will start the initialization routine when all the data has been received. The firmware version is displayed during the initialization routine. Check the firmware version that you updated.

(8) Turn off the power.

7.12 Adjusting the Output Voltage of the Power Supply

How to adjust the output voltage of the power supply

(1) Measure the output voltage at the CN2 connector between pin 1 and pin 2 on the power supply.

(2) If the measured voltage is not 24V±5%, then adjust the trimmer RV200 on the power supply to obtain the correct voltage.

7.13 Adjusting the Pen Exchange Y Direction Value (CE3000-120AP)

This adjustment will set the pen exchange Y direction value.

This value is used for the 2nd pen pen exchange.

If you replace the main board, use the following procedure to input the recorded adjustment values.

(1) Load a cutting sheet in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the ROLL2 media mode.

(4) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(5) Press the PREV key until the menu shown below is displayed.

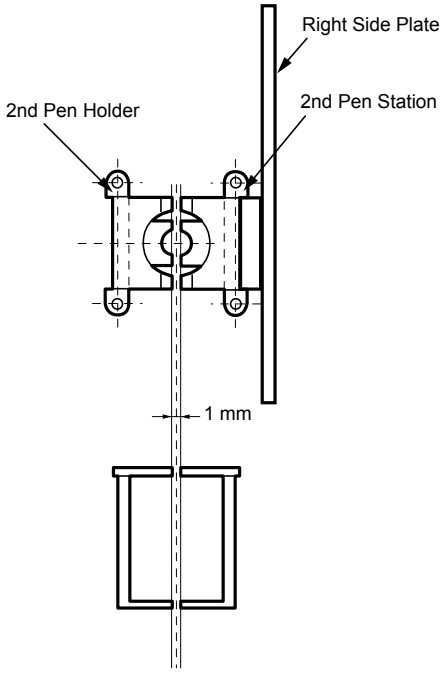
```
Pensel POS
```

(6) Press the ENTER key to display the menu shown below.

```
Pensel POS    0
```

(7) Press the RIGHT ARROW key; the 2nd pen holder moves to the 2nd pen station.
While the pens are being exchanged, continue pressing the LEFT ARROW key until the 2nd pen holder stops at the exchange position.

(8) Measure the gap between the 2nd pen holder and the 2nd pen station.



(9) Adjust the gap to be 1 mm.
Press the UP or DOWN ARROW key to change the Pensel POS value.
(1 unit = 0.05 mm)

(10) Press the ENTER key to store the setting and complete the adjustment.

7.14 Adjusting the Pen Exchange Height Value (CE3000-120AP)

This adjustment will set the pen exchange height value (SIKII).

This value is used for pen selection.

The plotter reads the pen height position when the power is turned on.

If the pen height position value is higher than this value (SIKII) the plotter knows it has taken the 2nd pen.

If the pen height position value is lower than this value (SIKII) the plotter knows it has taken the 1st pen.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the pen block, you must adjust the pen exchange height value using the following procedure.

(1) Load a cutting sheet in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the ROLL2 media mode.

(4) Press the PAUSE key to display the menu shown below.

DISTANCE ADJUST

(5) Press the PREV key until the menu shown below is displayed.

PEN 1/2 SIKII

(6) Press the ENTER key to display the menu shown below.

DPOS= 0 SH=+80

(7) If you replaced the main board only, input the values that are recorded on the chassis. (default factory settings)
Press the UP or DOWN ARROW key to change the SIKII value.

(8) If you replaced the pen block, mount a cutter pen in the cutter pen holder.

(9) Press the RIGHT ARROW key to lower the cutter pen and read the DPOS value for the 1st pen height position.

(10) Mount a ceramic pen in the 2nd pen holder. (The pen holder on the right side.)

(11) Press the RIGHT ARROW key to lower the 2nd pen and read the DPOS value for the 2nd pen height position.

(12) Calculate the SIKII value and input the value using the UP ARROW key or the DOWN ARROW key.
SH(SIKII) = (1st pen DPOS + 2nd pen DPOS)/2
Example: 1st pen DPOS=122, 2nd pen DPOS=53
(122+53)/2=87.5
Input 88 for SH (SIKII) value

(13) Press the ENTER key to store the setting and complete the adjustment.

7.15 Adjusting the Spacing Between Pen 1 and Pen 2 (CE3000-120AP)

This adjustment will set the spacing between pen 1 and pen 2.

If you replace the main board, use the following procedure to input the recorded adjustment values.

If you replace the pen block, you must adjust this value using the following procedure.

(1) Load an A4 (Letter) or larger size of paper in the plotter.

(2) Mount a water-based ballpoint pen in both the pen 1 holder and the pen 2 holder.

(3) Turn on the power while pressing the TEST and ENTER keys.

(4) Select the ROLL2 media mode.

(5) Press the COND key to display the 1 PEN condition setting menu.
Set condition 1 as shown below, and then press the ENTER key to store the setting.

```
1 PEN    12 30 2
```

(6) Press the COND key again, and then press the UP ARROW key to select the condition 2 setting menu.
Set condition 2 as shown below, and then press the ENTER key to store the setting.

```
2 PEN    12 30 2
```

(7) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(8) Press the PREV key until the menu shown below is displayed.

```
PEN 1/2 ADJ(M)
```

(9) Press the ENTER key to display the menu shown below.

```
PLOT ADJ PAT.
```

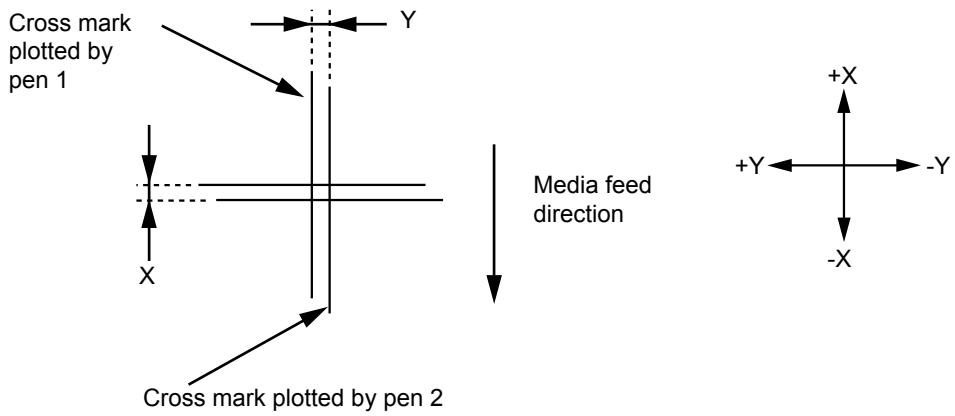
(10) Use the ARROW keys to move the pen to an open area to plot the cross marks.

(11) Press the ENTER key to plot cross marks by pen 1 and pen 2.

(12) After plotting the two cross marks, the following menu is displayed.

```
X=    0  Y=    0
```

(13) Measure the offset between the pen 1 cross mark and the pen 2 cross mark.



(14) Set the offset value. Press the UP ARROW key or DOWN ARROW key to change the number based on the pen 2 cross mark.
Press the RIGHT ARROW key or LEFT ARROW key to select the X or Y direction.

(15) Verify that the plotted pen 1 cross mark line is located at the center of the plotted pen 2 cross mark line.

(16) Repeat steps (8) to (15) if the plotted cross marks are incorrectly positioned. If the plotted cross marks are in the correct positions, press the ENTER key to store the setting and complete the adjustment.

8 SERVICE MODES

8.1 Sensor Test Mode

This mode checks the sensor status. If there is a bad sensor you will observe one of the symptoms in the table below.

Please check the relevant sensor(s).

Sensor	Symptom
Y home sensor	The pen block hits the right side plate.
Cam sensor	The plotter displays “LOAD MEDIA!” when media is already loaded.
Push roller sensor	The pen block hits the left side plate.
+X, -X media sensor	Media drops out of the plotter.

How to test the sensors

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(5) Press the NEXT key until the following menu is displayed.

```
SENSOR TEST
```

(6) Press the ENTER key to display the status shown below.

```
YH CH PH +XH -XH
```

Y: Y home sensor, C: Cam sensor, P: Push roller sensor, +X: +X media sensor, -X: -X media sensor

(7) Cover the front media sensor with a piece of paper.
The status of +X changes from “L” to “H”.

(8) Cover the rear media sensor with a piece of paper.
The status of -X changes from “L” to “H”.

(9) Move the pen block to the far right. When the pen block reaches the home position flag, the status of Y changes from “L” to “H”.

(9) Lower the media set lever to raise the push rollers. The status of C changes from “L” to “H”.

(10) Move the pen block to the left and right. When the pen block crosses the push roller, the status of P changes from “L” to “H”.

(11) When testing is complete, turn off the power to the plotter.

8.2 Control Panel Membrane Switch Test Mode

This mode checks the control panel membrane switch status. If there is a bad switch you may have trouble with the Control panel membrane switch panel or the control panel relay board.

How to test the control panel membrane switches

(1) Load an A4 (Letter) or larger size sheet of paper in the plotter.

(2) Turn on the power while pressing the TEST and ENTER keys.

(3) Select the media mode.

(4) Press the PAUSE key to display the menu shown below.

```
DISTANCE ADJUST
```

(5) Press the NEXT key until the following menu is displayed.

```
TEST KEY
```

(6) Press the ENTER key to display the status shown below.

```
00 0000 0000
```

(7) Press each key on the control panel; the status will change from “0” to “1”.

The status of each digit:

Key	Digit
NEXT	1st digit
PREV.	2nd digit
ORIGIN	3rd digit
TEST	4th digit
COND	5th digit
ENTER	6th digit
DOWN ARROW	7th digit
UP ARROW	8th digit
RIGHT ARROW	9th digit
LEFT ARROW	10 th digit
PAUSE	STATUS Lamp (lights when the PAUSE key is pressed, but only the first time)

(8) When testing is completed, turn off the power to the plotter.

9. TROUBLESHOOTING

9.1 The Plotter is Turned On But Doesn't Operate

Symptom	Verification item	Solution
The control panel's LED lamp does not light or the LCD does not display anything.	(1) Is the plotter being supplied with power?	No .....Check that the power cord is securely connected to the plotter's AC line inlet. Yes....Verify item (2).
	(2) Is the FPC270102 flexible cable securely connected to the main board and the control panel?	No .....Connect the flexible cable securely. Yes....Verify item (3).
	(3) Is the FPC270102 flexible cable broken?	No .....Verify item (4). Yes....Replace the FPC270102 flexible cable.
	(4) Is the AC line electrical output correct?	No .....Change the AC line. Yes....Verify item (5).
	(5) Does the power supply unit have a 24 V output?	No .....Replace the power supply unit. Yes....Replace the main board.

9.2 Media Loading Operations

Symptom	Verification item	Solution
The media drops to the front of the plotter.	(1) Is the front edge of the media curled?	Yes....Replace the media. No .....Verify item (2).
	(2) Is the front media sensor dirty?	Yes....Clean the front media sensor. No .....Verify item (3).
	(3) Is the front media sensor cable securely connected to the main board and the sensor?	Yes....Replace the front media sensor. No .....Connect the cable securely.
The media drops to the rear of the plotter.	(1) Is the rear edge of the media curled?	Yes....Replace the media. No .....Verify item (2).
	(2) Is the rear media sensor dirty?	Yes....Clean the rear media sensor. No .....Verify item (3).
	(3) Is the rear media sensor cable securely connected to the main board and the sensor?	Yes....Replace the rear media sensor. No .....Connect the cable securely.
The plotter displays “LOAD MEDIA!” when media has been loaded.	(1) Does the cam sensor plate block the cam sensor?	Yes....Check the cam sensor plate and attach it at the correct position. No .....Verify item (2).
	(2) Is the cam sensor cable securely connected to the main board and the sensor?	No .....Connect the cable securely. Yes....Replace the cam sensor board.
The plotter can’t recognize the Y direction of the media size.	(1) Is there any dust on the push roller sensor?	Yes....Clean the push roller sensor. No .....Verify item (2).
	(2) Is the push roller sensor flexible cable securely connected to each connector?	Yes....Replace the push roller sensor. No .....Connect the cable securely.
The plotter can’t recognize the X direction of the media size.	(1) Is there any dust on the front media sensor and the rear media sensor?	Yes....Clean the front media sensor and the rear media sensor. No .....Verify item (2).
	(2) Are the front media sensor and the rear media sensor cables securely connected to each connector?	No .....Connect the cables securely. Yes....Replace the sensor(s).
The media is fed at an angle.	(1) Are the push rollers worn down?	Yes....Replace the push roller(s). No .....Verify item (2).
	(2) Is there anything on the drive roller?	Yes....Clean the drive roller with a brush. No .....Verify item (3).
	(3) Do the push rollers have the correct pressure?	No .....Replace the push roller spring(s). Yes....Verify item (4).
	(4) Is the drive roller worn down?	Yes....Replace the drive roller. No .....Verify item (5).
	(5) Is the drive roller attached correctly?	Yes....Replace the bearing of the drive roller. No .....Attach the drive roller correctly.

9.3 Cutting Operations

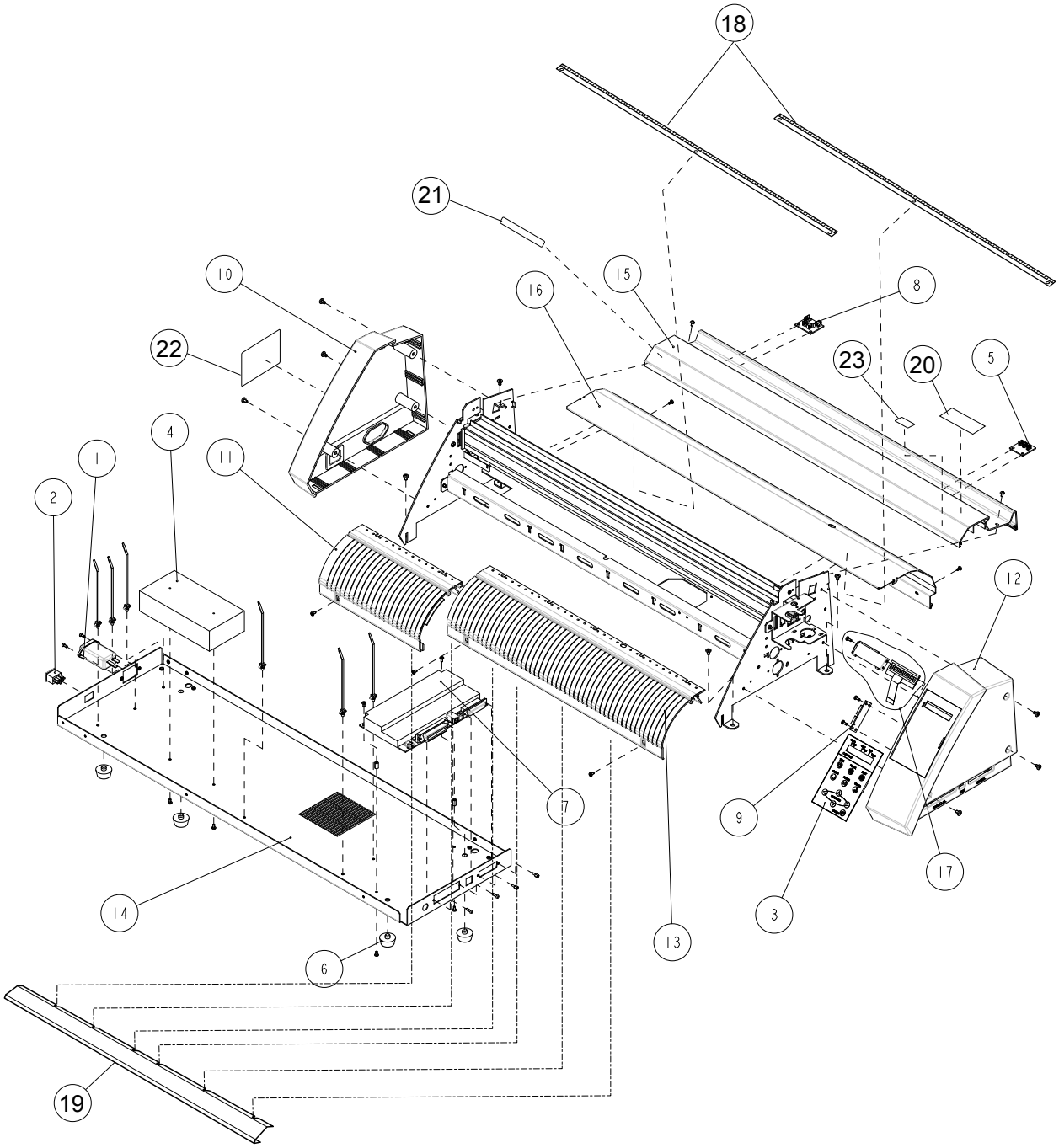
Symptom	Verification item	Solution
The cut line is crooked.	(1) Does the blade turn well in the blade holder?	No .....Replace the blade holder. Yes....Verify item (2).
	(2) Do the X and Y drive motor belts have the correct tension?	No .....Adjust the tension. No .....Verify item (3).
	(3) Is the Y belt attached correctly?	No .....Attach it correctly. Yes....Verify item (3).
	(4) Is the pen block attached correctly?	No .....Attach it correctly. Yes....Verify item (4).
	(5) Is the pen arm shaky?	Yes....Adjust the pen arm shaft slider tension.
The blade skips and does not completely cut lines that should be solid.	(1) The blade is extended too far.	Adjust the blade length.
	(2) The cutting SPEED is too high.	Adjust the SPEED setting.
	(3) Verify the pen force.	Adjust the pen force.
	(4) Verify the pen block height.	Adjust the pen block height.

10. PARTS LIST

10.1 Outer Casing

No.	Part No.	Description	Q'ty	Remarks
1	500051515	Inlet	1	ID-0322-H
2	508000025	Power Switch	1	JWA2120-0033
3	682123080	Control Panel Membrane Switch Panel	1	PR270108B
4	500051380	Power Supply Unit	1	SWD060P-24
	500051591	Power Supply Unit for CE3500 Main Board	1	LEP100F-36
	500051593	Power Supply Unit for CE3500 Fan	1	LDA30F-24
5	791230708	Fan Relay Board	1	CE3000-120/120AP
	772123720	CE3500 Relay Board	1	CE3500
6	363126121	Foot	4	TM-127-4
7	791230714	Main Board 60/120	1	CE3000-60,120
	791230720	Main Board 120AP	1	CE3000-120AP
	791230715	Main Board 40	1	CE3000-40
	791230716	Main Board for CE3500	1	CE3500
	621237500	Heat sink for CE3500 Main Board	1	CE3500
	791230717	Main Board for CE2800	1	CE2800
	791230718	Main Board for DT 60	1	CE2800-SSK
	791230722	Main Board for CE3000-40 Mk2	1	CE3000-40Mk2
	791230723	Main Board for CE3000-60/120 Mk2	1	CE3000-60Mk2/120Mk2
	792130719	Main Board for CE3000-40CRP	1	Craft Robo Pro
	791230724	Main Board for 9e60	1	9e60
8	791230707	Motor Relay Board	1	CE3000-120/120AP
9	791230703	Control Panel Relay Board	1	PR270104
10	621234201	Left Side Cover	1	
	621238000	Left Side Cover SK35	1	CE3500/CE2800/SSK
	621313110	Left Side Cover 9e60	1	9e60
11	621230052	Front Guide 60	1	CE3000-60
	621230452	Front Guide 120 V2	1	CE3000-120/120AP
12	621234213	Right Side Cover	1	
	621238000	Right Side Cover SK35	1	CE3500/CE2800/SSK
	621313120	Right Side Cover 9e60	1	9e60
13	621230042	Front Guide 40	1	CE3000-40,60
14	621230308	Main chassis 120	1	CE3000-120/120AP
	621230007	Main chassis 60	1	CE3000-60
	621230207	Main chassis 40	1	CE3000-40
15	621234404	Center Cover 120	1	CE3000-120/120AP
	621234242	Center Cover 60	1	CE3000-60
	621234302	Center Cover 40	1	CE3000-40
	621237400	Center Cover for CE3500	1	CE3500
	621238100	Center Cover SK60	1	CE2800/SSK
	621313130	Center Cover for 9e60	1	9e60
16	621230464	Rear Guide 120/120AP	1	CE3000-120/120AP
	621230064	Rear Guide 60	1	CE3000-60
	621230224	Rear Guide 40	1	CE3000-40
17	791230711	LCD Assembly	1	
18	619000151	Anti-electrostatic Brush	2	CE3000-120AP
19	621250070	Front Media Guide	1	CE3000-120AP
20	621114110	Caution Label	1	
21	621234700	Emblem CE3000	1	CE3000
	621237700	Emblem CE3500	1	CE3500
	621238200	Emblem CE2800	1	CE2800
	621238300	Emblem DT 60	1	CE2800-SSK
	621308330	Emblem Craft Robo	1	CE3000-40CRP
	621313210	Emblem 9e60	1	9e60
22	621234500	Rating Label	1	CE3000
	621237600	Rating Label CE3500	1	CE3500
	621231200	Rating Label CE2800	1	CE2800
	621238800	Rating Label DT 60	1	CE2800-SSK
	621313220	Rating Label 9e60	1	9e60
23	621238180	Mk2 Label	1	CE3000-40Mk2/60Mk2/120Mk2 (Not required to the USA model)

Outer Casing

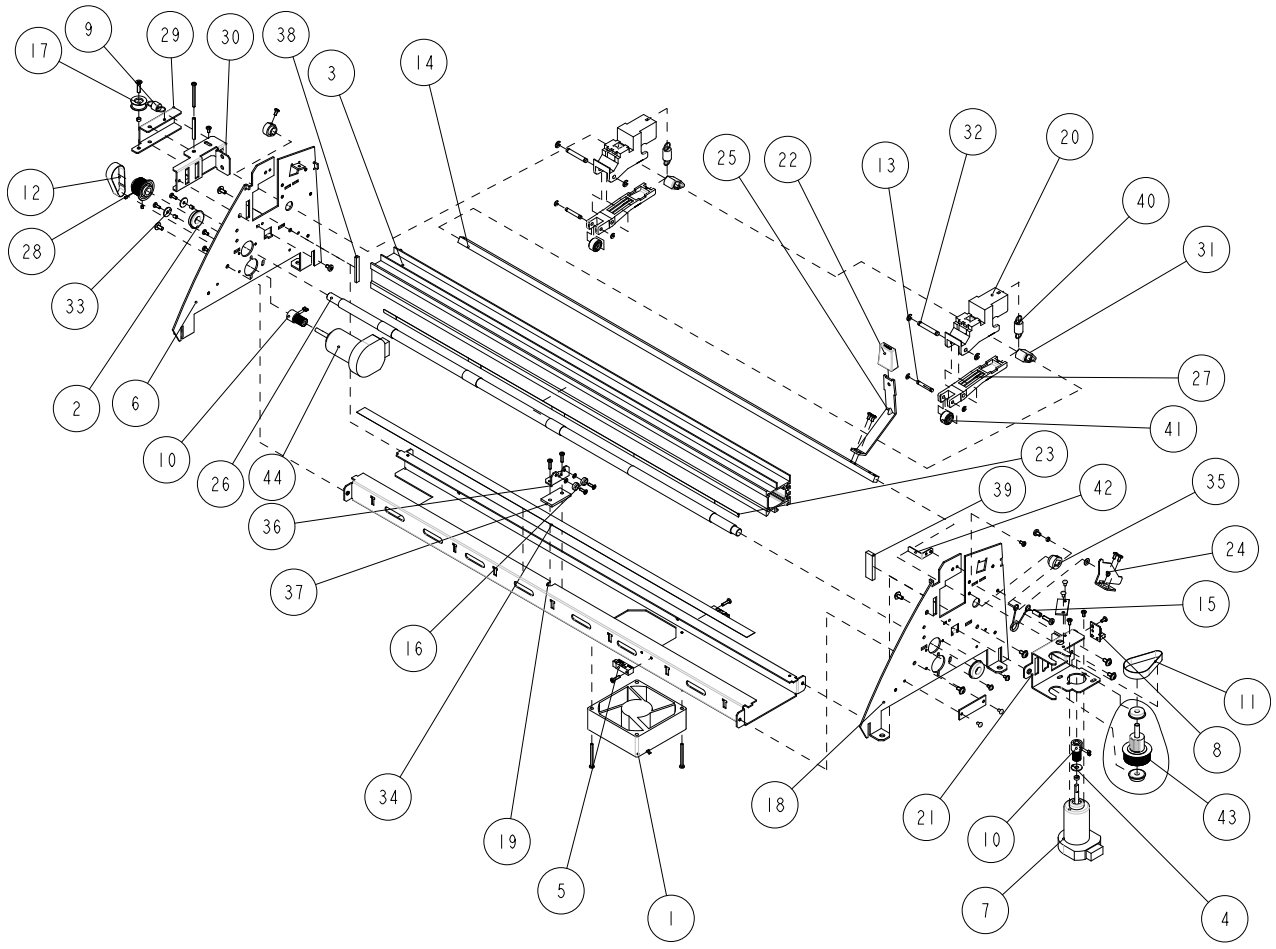


10.2 Main Frame

No.	Part No.	Description	Q'ty	Remarks
1	682123200	Vacuum Fan, 3612-05W-B50-B03	1	CE3000-40,60
	682123200	Vacuum Fan, 3612-05W-B50-B03	2	CE3000-120,120AP
2	314690020	Bearing	2	6900ZZNXR
3	621233310	Y rail 120	1	CE3000-120/120AP
	621113040	Y rail 60	1	CE3000-60
	621233210	Y rail 40	1	CE-3000-40
4	621113140	Pulley flange	1	
5	500051382	Media Sensor	2	PS-117ND1
6	621230012	Left side plate	1	
7	682900610	Y Motor	1	TS3747N47E3,CE3000-60,120,120AP
	682123220	Y Motor	1	KH42JM2R034,CE3000-40
8	791230705	Cam Sensor Board	1	PR270107
9	380206731	Spring	1	DE-673
10	010012022	Y Motor pulley	1	
11	379500004	Y Drive Belt	1	100TN15-10W,CE3000-120,120AP
	378410011	Y Drive Belt	1	100TN15-5W,CE3000-40,60
12	375311002	X Drive Belt	1	82TN15-10.0W,CE3000-120,120AP
	378408211	X Drive Belt	1	82TN15-5W,CE3000-40,60
13	092002041	Push Roller shaft	2	CE3000-40,60
	092002041	Push Roller shaft	3	CE3000-120,120AP
14	681230380	Cam shaft 120	1	CE3000-120,120AP
	621230090	Cam shaft 60	1	CE3000-60
	621230240	Cam shaft 40	1	CE3000-40
15	095000040	Cam shaft Spring	1	
16	309011003	Bearing, 10SRF41Z	2	CE3000-40,60
	309011003	Bearing, 10SRF41Z	6	CE3000-120,120AP
17	035032260	Tension Pulley	1	CE3000-40,60
	621153211	Tension Pulley	1	CE3000-120,120AP
18	621230021	Right Side Plate	1	CE3000-40,60
	621230022	Right Side Plate	1	CE3000-120,120AP
19	621230314	Vacuum Base 120	1	CE3000-120
	621250012	Vacuum Base 120AP	1	CE3000-120AP
	621230032	Vacuum Base 60	1	CE3000-60
	621230213	Vacuum Base 40	1	CE3000-40
20	621112111	Push Roller Arm Base	2	CE3000-40,60
	621112111	Push Roller Arm Base	3	CE3000-120,120AP
21	621233414	Y Drive Bracket	1	
22	621234222	Cam lever Cap	1	
23	621234610	Push Roller Position Label 60	1	CE3000-60
	621234710	Push Roller Position Label 40	1	CE3000-40
	621234811	Push Roller Position Label 120R	1	CE3000-120,120AP, Right side
	621234820	Push Roller Position Label 120L	1	CE3000-120,120AP, Left side
24	621230132	Cam Sensor Plate	1	
25	621230121	Cam Lever	1	
26	621232201	Drive Roller 120	1	CE3000-120,120AP
	621232000	Drive Roller 60	1	CE3000-60
	621232100	Drive Roller 40	1	CE3000-40
27	621112100	Push Roller Arm	2	CE3000-40,60
	621112100	Push Roller Arm	3	CE3000-120,120AP
28	621232011	X Drive Pulley	1	
29	621233430	Y Tension Bracket	1	
30	621233422	Y Tension Arm	1	
31	621230111	Cam	2	CE3000-40,60
	621230111	Cam	3	CE3000-120,120AP
32	621112120	Push Roller Arm Shaft	2	CE3000-40,60
	621112120	Push Roller Arm Shaft	3	CE3000-120,120AP
33	621112020	Bearing Stopper	2	
34	621230371	Cutting Mat 120	1	CE3000-120
	621250520	Cutting Mat 120AP	1	CE3000-120AP
	621230070	Cutting Mat 60	1	CE3000-60
	621230230	Cutting Mat 40	1	CE3000-40
35	621230101	Cam Shaft Bush	2	
36	621112010	Drive Roller Holder	1	CE3000-40,60
	621112010	Drive Roller Holder	3	CE3000-120,120AP
37	621112040	Rubber Spacer	1	CE3000-40,60
	621112040	Rubber Spacer	3	CE3000-120,120AP

No.	Part No.	Description	Q'ty	Remarks
38	621230140	Left Slider Stopper	1	
39	621230150	Right Slider Stopper	1	
40	621112140	Push Roller Spring	2	DE-645
	621153150	Center Push Roller Spring	1	DE-646,CE3000-120
	380206341	Center Push Roller Spring	1	DE-634,CE3000-120AP
41	095002121	Push Roller	2	CE3000-40,60
	095002121	Push Roller	3	CE3000-120,120AP
42	621230080	Home Sensor Bracket	1	
	621253110	Home Sensor Bracket AP	1	CE3000-120AP
43	791230710	Y Drive Pulley Assy	1	
44	682123210	X Motor for CE3000-40	1	KH42JM2R033
	682900600	X Motor for CE3000-60	1	TS3747N46E3
	509000052	X Motor for CE3000-120	1	UGFMED-B5LGRA5

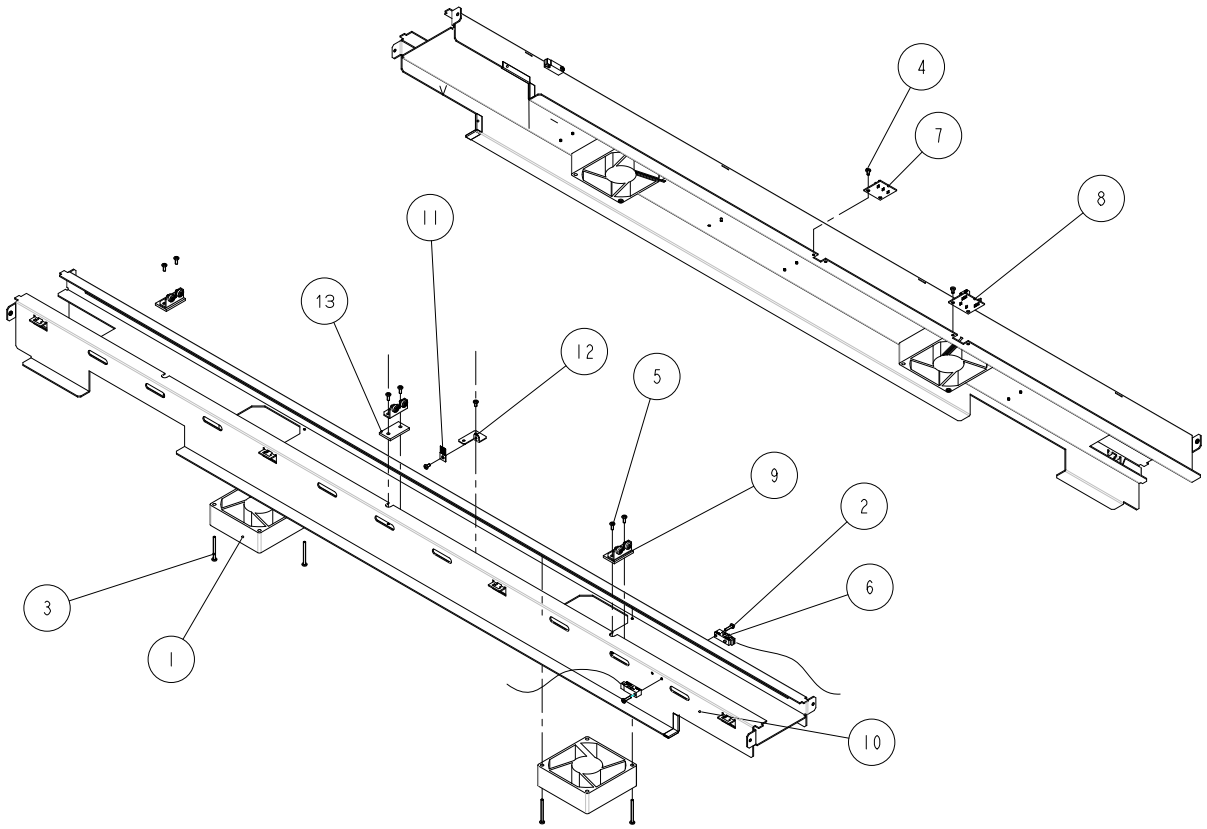
Main Frame



10.3 Base Assy for CE3000-120

No.	Part No.	Description	Q'ty	Remarks
1	682123200	Vacuum Fan	2	3612-05W-B50-B03
2		M3L12 Binding Head Screw	4	
3		M3L35 Binding Head Screw	2	
4		M3L6 Binding Head Screw	4	
5		M3L8 Binding Head Screw	6	
6	500051382	Media Sensor	2	PS-117ND1
7	791230707	Motor Relay Board	1	CE3000-120,120AP
8	791230708	Fan Relay Board	1	CE3000-120,120AP
9	621112010	Drive Roller Holder	3	
10	621230314	Vacuum Base 120	1	CE3000-120,120AP
	621250012	Vacuum Base 120AP	1	CE3000-120AP
11	035132220	Brush	1	
12	621230390	Brush Bracket	1	
13	621112040	Rubber Spacer	3	

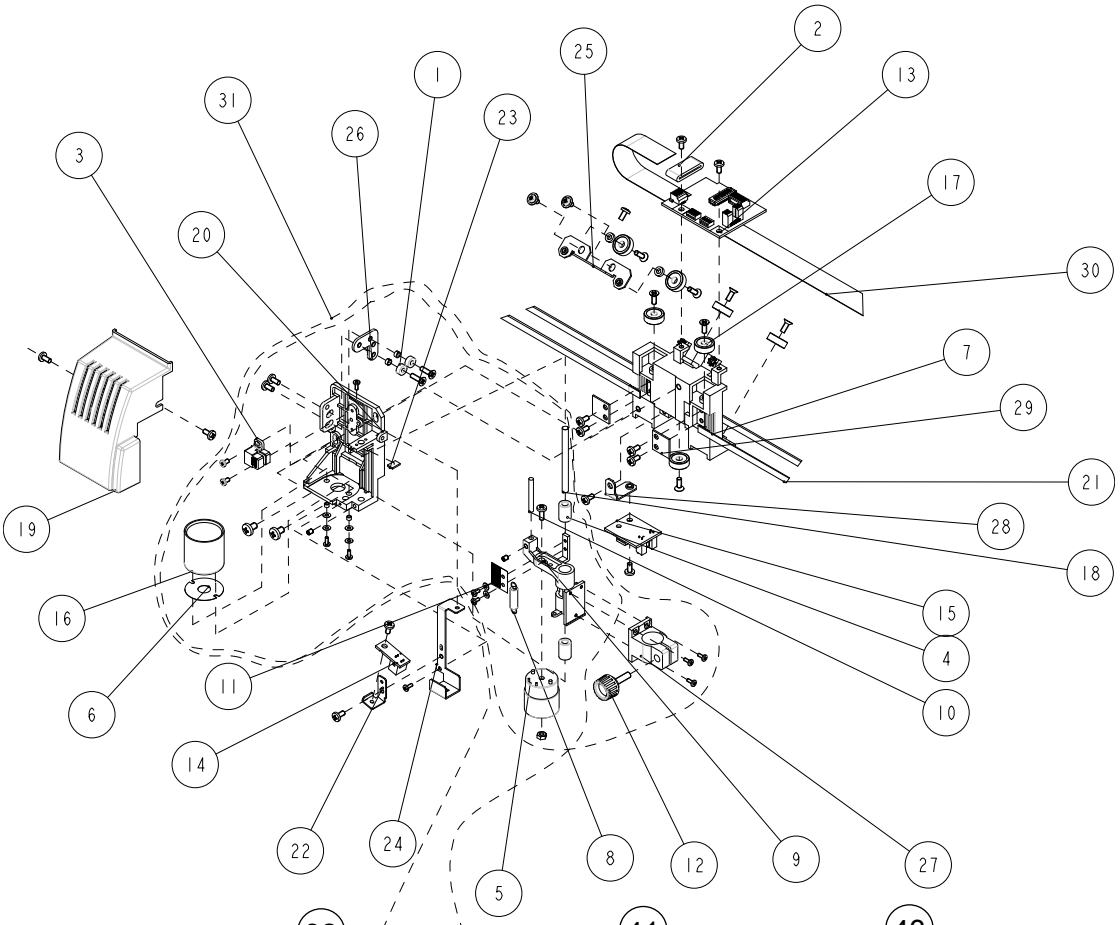
Base Assy for CE3000-120

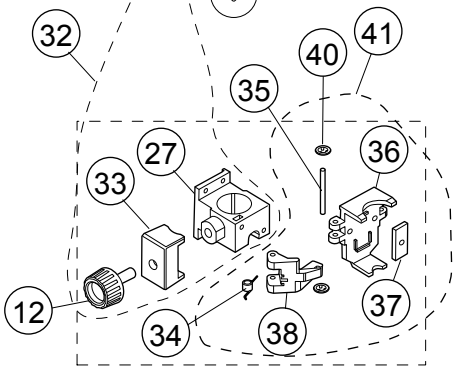


10.4 Pen Block

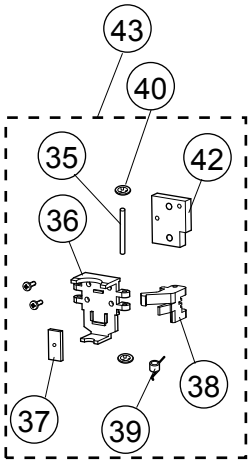
No.	Part No.	Description	Q'ty	Remarks
1	310068320	Bearing Roller	2	683ZZMC3PS2S
2	503000031	Core	1	FPC-25-12
3	791230709	Encoder Sensor Assembly	1	CE3000-120/120AP
4	617363321	Bush LB4YC	1	
5	305320007	Moving Coil PL-326B	1	CE3000-120/120AP
	500051575	Moving Coil PL-603	1	CE3000-40/60
6	095004140	Moving Coil (PL-326B) Insulation Sheet	1	
	621233600	Moving Coil (PL-603) Insulation Sheet	1	
7	621113000	Y Slider	1	
8	380205551	Pen arm spring E-555	1	
	380205351	Pen arm spring E-535	1	CE3000-120AP
9	621113510	Pen arm	1	
10	617363390	Guide Shaft	1	
11	617363351	Pen Encoder Strip	1	CE3000-120/120AP
12	621113581	Thumb Screw L14	1	CE3000-40/60/120
	621113591	Thumb Screw L10	1	CE3000-120AP
13	791230702	Y Relay Board	1	PR270105
14	791230706	Auto Registration Mark Sensor	1	PR270109A (Option for CE3000-40/60/120)
15	791230704	Push Roller Sensor Board	1	PR270106
16	500051576	PL603 Yoke	1	CE3000-40/60 only
17	095013010	Bearing BB13	7	
18	021500650	Slide Shaft	1	
19	621234232	Pen Block Cover	1	
20	621113500	Moving Coil Base	1	
21	621233200	Y Belt 40	1	CE3000-40
	621113021	Y Belt 60	1	CE3000-60
	621153201	Y Belt 120	1	CE3000-120/120AP
22	621239812	Auto Registration Mark Sensor Bracket	1	(Option for CE3000-40/60/120)
23	621113520	Rubber Plate	1	
24	621239804	Auto Registration Mark Sensor Bracket A	1	(Option for CE3000-40/60/120)
25	621233000	Bearing Roller Tension Plate	1	
26	621113530	Bearing Roller Base Bracket	1	
27	621113540	Cutter Pen Holder	1	CE3000-40/60/120
	622192012	Cutter Pen Holder A	1	CE3000-120AP
28	621113050	Push Roller Sensor Bracket	1	
29	621113030	Y Belt Stopper	2	
30	692123330	Y Flexible Cable, FPC270103	1	CE3000-40,60
	692123340	Y Flexible Cable, FPC270104	1	CE3000-120/120AP
31	791230700	Pen Block Assembly	1	CE3000-40,60
	791230701	Pen Block Assembly 120	1	CE3000-120
32	791230721	Pen Block Assembly 120AP	1	CE3000-120AP
33	622192022	Cutter Pen Holder B	1	CE3000-120AP
34	622192091	Arm Spring 2	1	CE3000-120AP
35	337120250	Shaft Pin D2L25H7	2	CE3000-120AP
36	622192060	Pen Holder AP	2	CE3000-120AP
37	053203420	Magnet	2	CE3000-120AP
38	622192070	Lock Arm	2	CE3000-120AP
39	622192081	Arm Spring 1	1	CE3000-120AP
40	333302001	Stopper ring CS 2 mm	4	CE3000-120AP
41	792219702	Pen Holder Assy 4200	1	CE3000-120AP
42	621163200	Pen Holder Spacer	1	CE3000-120AP
43	792219703	Pen Station Assy 4200	1	CE3000-120AP

Pen Block





Pen Holder CE3000-120AP



Pen Station
CE3000-120AP

10.5 Wiring Harness

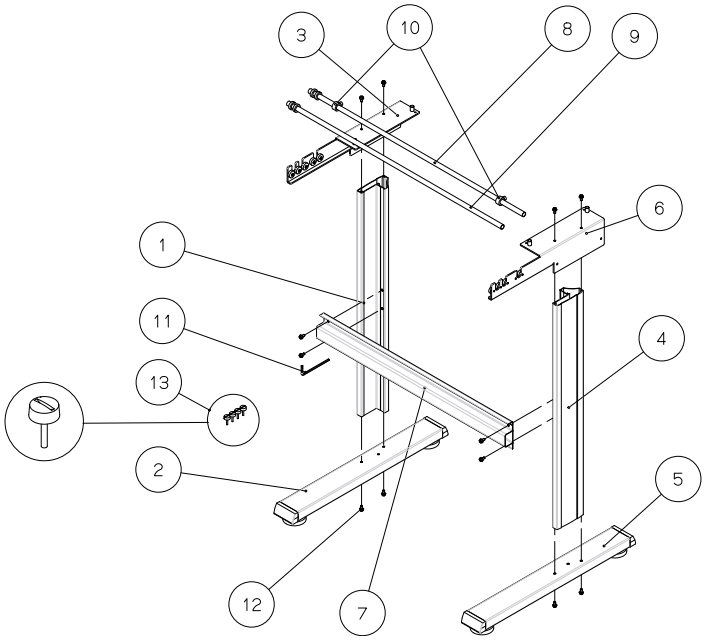
No.	Part No.	Description	Q'ty	Remarks
1	692123015	CA270101D (Power Supply to Power Switch)	1	
2	692123020	CA270102 (Power Supply to Main Board)	1	CE3000-40,60
	692123101	CA270110A (Power Supply to Main Board)	1	CE3000-120/120AP
3	692123032	CA270103B (Media Sensor to Main Board)	2	
4	692123041	CA270104 (Inlet to Power Supply, Brown)	1	
5	692123051	CA270105 (Inlet to Power Supply, Blue)	1	
6	692123061	CA270106 (Inlet to FG)	1	
7	692123350	FPC270105 (Cam Sensor Flexible Cable)	1	
8	692123360	FPC270106 (Push Roller Sensor Flexible Cable)	1	
9	692123320	FPC270102 (Control Panel Flexible Cable)	1	
10	692123112	CA270111B (X motor Extension Cable)	1	CE3000-120/120AP
11	692123122	CA270112B (X motor Encoder Extension Cable)	1	CE3000-120/120AP
12	692123132	CA270113B (Fan Extension Cable)	1	CE3000-120/120AP

10.6 Stand (CE3000-120/120AP standard, CE3000-60 optional)

Stand CE3000-60

No.	Part No.	Description	Q'ty	Remarks
1	621239910	Side Stay 60 (Right and Left)	2	CE3000-60
2	621239960	Right Foot 60	1	CE3000-60
3	621239940	Right Top Plate 60	1	CE3000-60
4	621239910	Side Stay 60 (Right and Left)		
5	621239970	Left Foot 60	1	CE3000-60
6	621239950	Left Top Plate 60	1	CE3000-60
7	621239930	Center Bar 60	1	CE3000-60
8	621151241	Stock Shaft 60	2	CE3000-60
9	621151241	Stock Shaft 60		
10	621239980	Stopper 60	2	CE3000-60
11	305811005	Hexagonal wrench (M5)	1	
12	391650100	Hexagonal bolts (M5M5L10Ni)	12	
13		Coin screws	4	CE3000-60

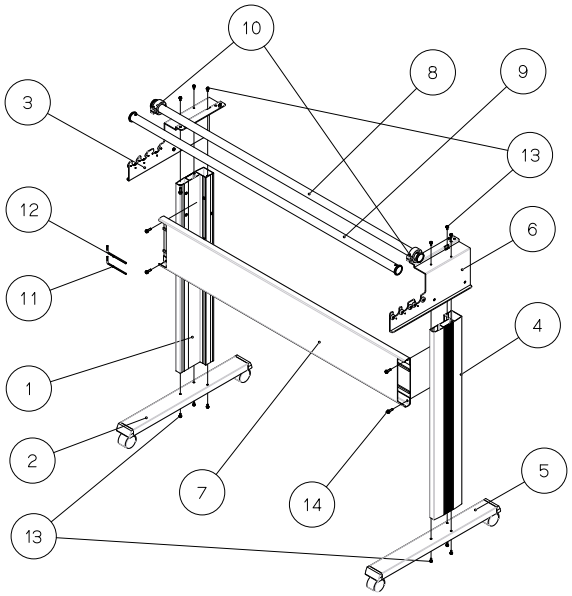
Stand CE3000-60



Stand CE3000-120

No.	Part No.	Description	Q'ty	Remarks
1	621231031	Right Side Stay 120	1	CE3000-120
2	621231041	Right Foot 120	1	CE3000-120
3	621231020	Right Top Plate 120	1	CE3000-120
4	621231071	Left Side Stay 120	1	CE3000-120
5	621231081	Left Foot 120	1	CE3000-120
6	621231060	Left Top Plate 120	1	CE3000-120
7	621151130	Center Bar 120	1	CE3000-120
8	621231093	Stock Shaft 120	2	CE3000-120
9	621231093	Stock Shaft 120		
10	621231121	Stopper 120	2	CE3000-120
11	305811005	Hexagonal wrench (M5)	1	
12	301001020	Hexagonal wrench (M6)	1	CE3000-120
13	391650100	Hexagonal bolts (M5M5L10Ni)	12	
14	391660200	Hexagonal bolts (M6L20Ni)	8	CE3000-120

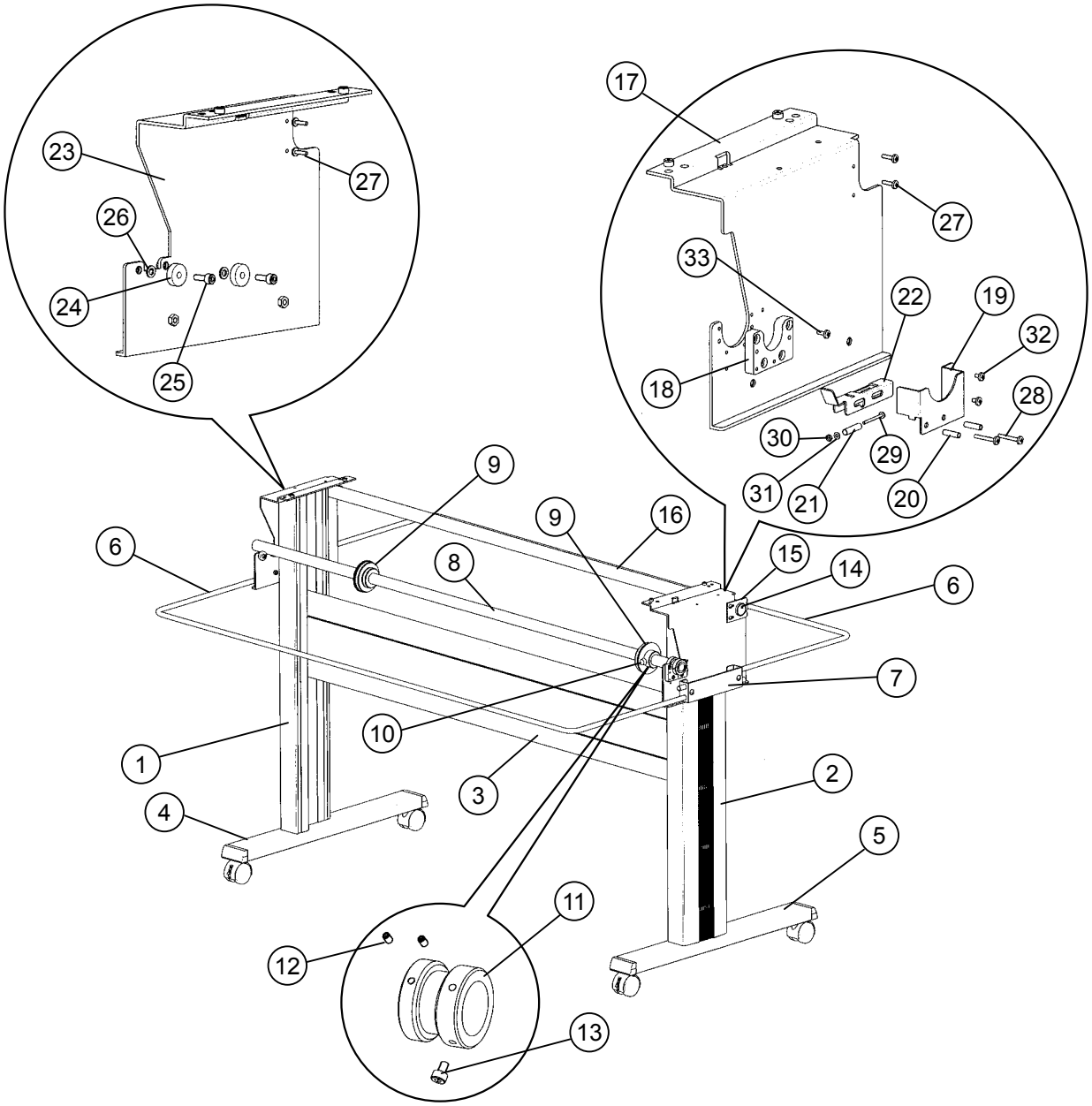
Stand CE3000-120



Stand CE3000-120AP

No.	Part No.	Description	Q'ty	Remarks
1	621231370	Left Side Stay 120AP	1	CE3000-120AP
2	621231380	Right Side Stay 120AP	1	CE3000-120AP
3	621151130	Center Bar 120	1	CE3000-120
4	621231170	Left Foot 120AP	1	CE3000-120AP
5	621231180	Right Foot 120AP	1	CE3000-120AP
6	621159730	BS Rear Pipe 120	2	CE3000-120/120AP
7	621159710	BS Bracket 120	2	CE3000-120/120AP
8	621161250	Stock Shaft 120AP	1	CE3000-120AP
9	619052391	2/3 Inch Stopper	2	CE3000-120AP
10	391906151	Coin Screw M6L15	1	CE3000-120AP
11	621259011	Stopper 120AP	1	CE3000-120AP
12	391440068	M4L6 Set Screw	2	CE3000-120AP
13		M4L6 Cap Screw	1	CE3000-120AP
14	621231113	Alignment Shaft Cap	2	CE3000-120AP
15	621252251	Alignment Shaft Holder AP	2	CE3000-120AP
16	621231103	Shaft 120	1	CE3000-120AP
17	621251030	Right 120AP Holder Plate	1	CE3000-120AP
18	621161132	100AP Shaft Holder	1	CE3000-120AP
19	621259050	AP Stopper Base	1	CE3000-120AP
20	392040180	Bush D4L18	2	CE3000-120AP
21	380101981	Spring, C-198	1	CE3000-120AP
22	621259070	AP Stopper Arm	1	CE3000-120AP
23	621251020	Left 120AP Holder Plate	1	CE3000-120AP
24	310063620	Bearing 636ZZ	2	CE3000-120AP
25		M6L16 Cap Screw	2	
26		Washer C6 D11.5	2	
27		M4L14 Binding Head Screw	4	
28		M4L25 Binding Head Screw	2	
29		M3L30 Binding Head Screw	1	
30		M3 Nut	1	
31		Washer C3 D8	1	
32		M4L6 Binding Head Screw	2	
33		M4L8 Binding Head Screw	4	
	621161040	Basket 100AP	1	CE3000-120AP
	305811005	Hexagonal wrench (M5)	1	
	301001020	Hexagonal wrench (M6)	1	
	391650100	Hexagonal bolts (M5M5L10Ni)	12	
	391660200	Hexagonal bolts (M6L20Ni)	8	

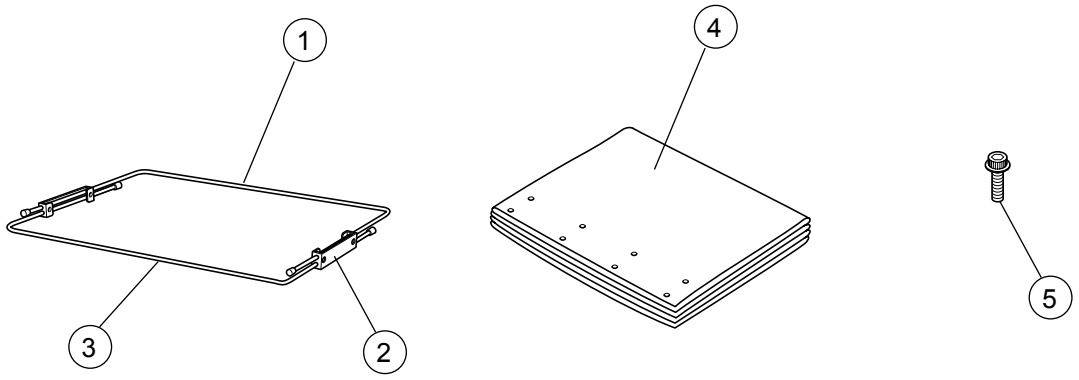
Stand CE3000-120AP



10.7 Option Basket

No.	Part No.	Description	Q'ty	Remarks
1	621159720	BS Front Pipe 120	1	CE3000-120
	621159820	BS Front Pipe 60	1	CE3000-60
2	621159710	BS Bracket 120	2	
3	621159730	BS Rear Pipe 120	1	CE3000-120
	621159830	BS Rear Pipe 60	1	CE3000-60
4	621159741	Basket 120	1	CE3000-120
	621239710	Basket W	1	CE3000-60
5	301001020	Hexagonal wrench (M6)	1	

Option Basket



10.8 Other Parts

Standard Accessories

No.	Part No.	Description	Q'ty	Remarks
1	621239101	Roll Stocker	2	CE3000-40, 60
2	350190621	Roll Stocker Roller CD-196/57W	4	CE3000-40, 60
3	308002101	Cutter knife, Q-100P	1	

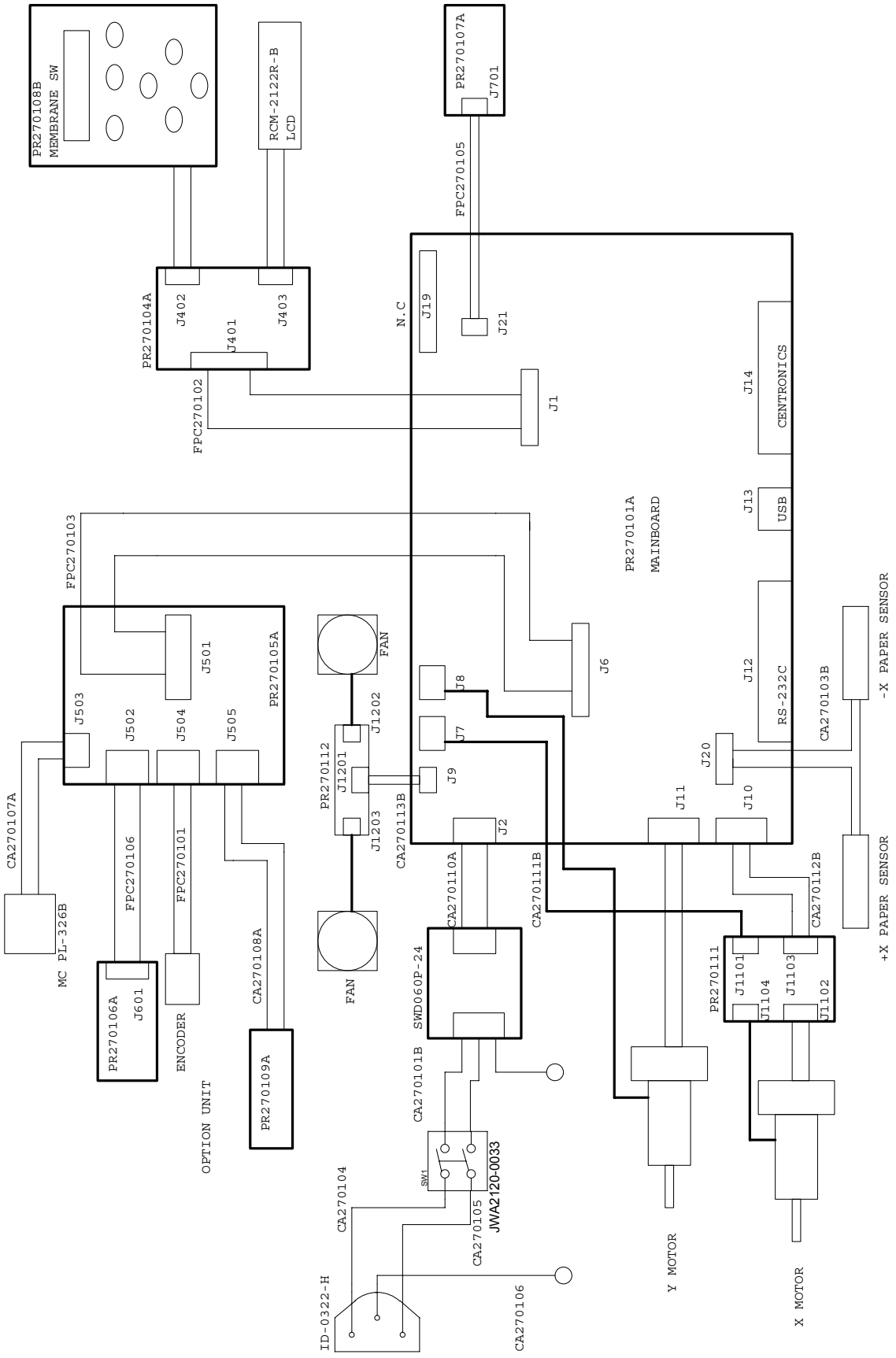
Packing Boxes

No.	Part No.	Description	Q'ty	Remarks
1	621239300	Packing Box for CE3000-40	1	
2	621239200	Packing Box for CE3000-60	1	
3	621239500	Packing Box for CE3000-120	1	
4	621239990	Packing Box for CE3000-60 Option Stand	1	
5	621259310	Packing Box for CE3000-120AP	1	
6	621251090	Packing Box for CE3000-120AP Stand	1	

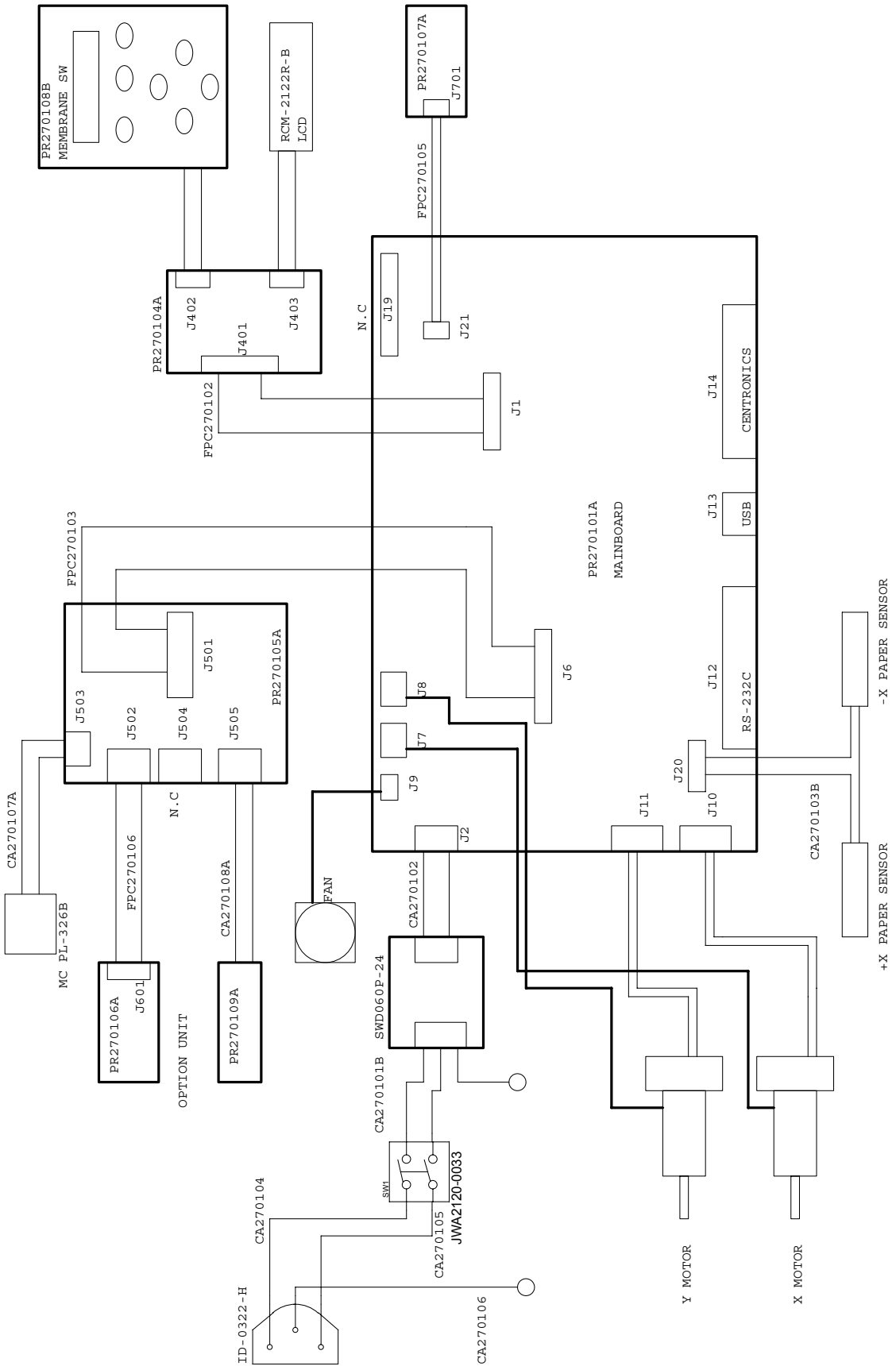
11. BLOCK DIAGRAMS AND CIRCUIT DIAGRAMS

11.1 Block Diagrams

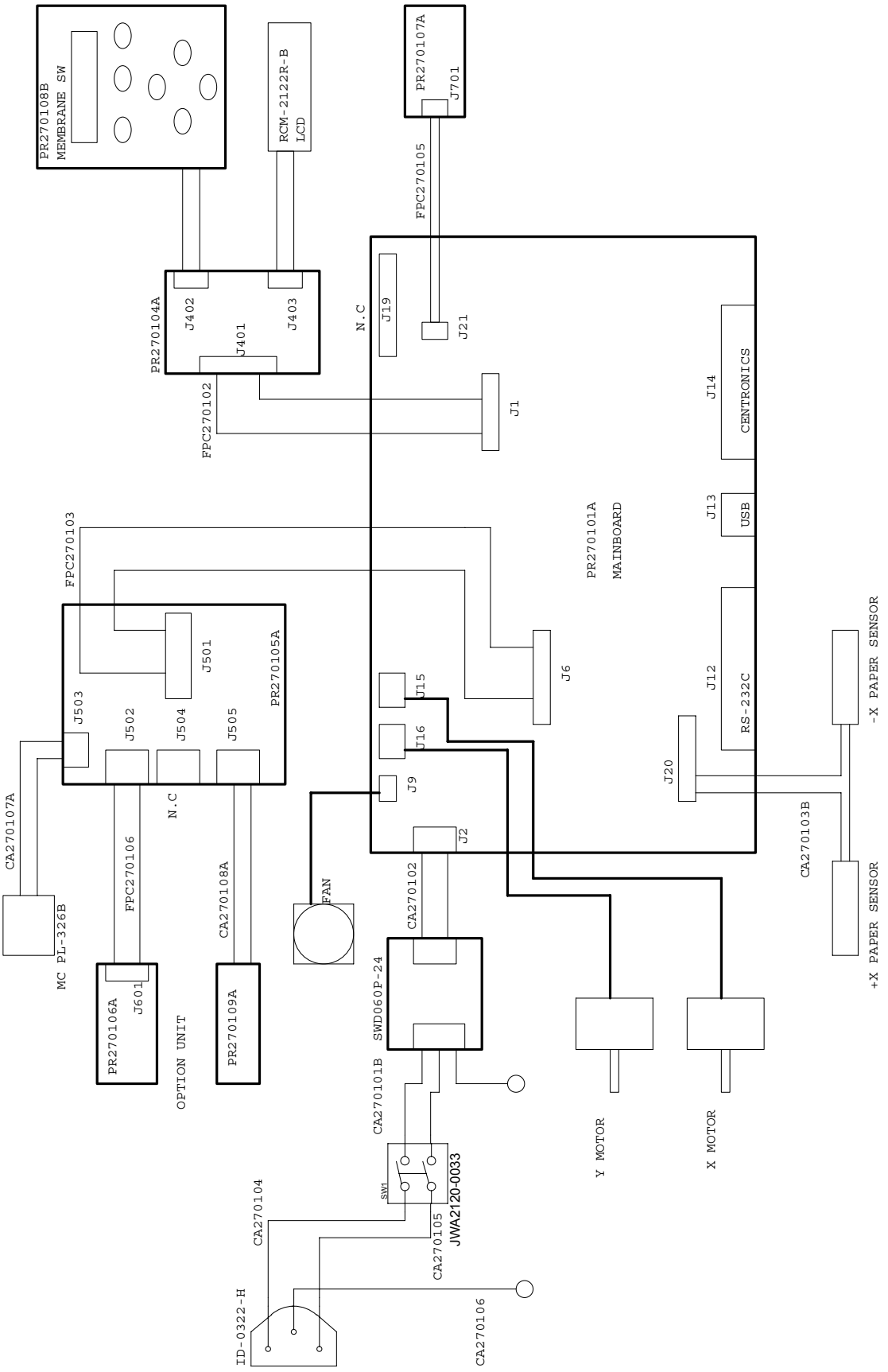
11.1.1 Block Diagram for CE3000-120



11.1.2 Block Diagram for CE3000-60

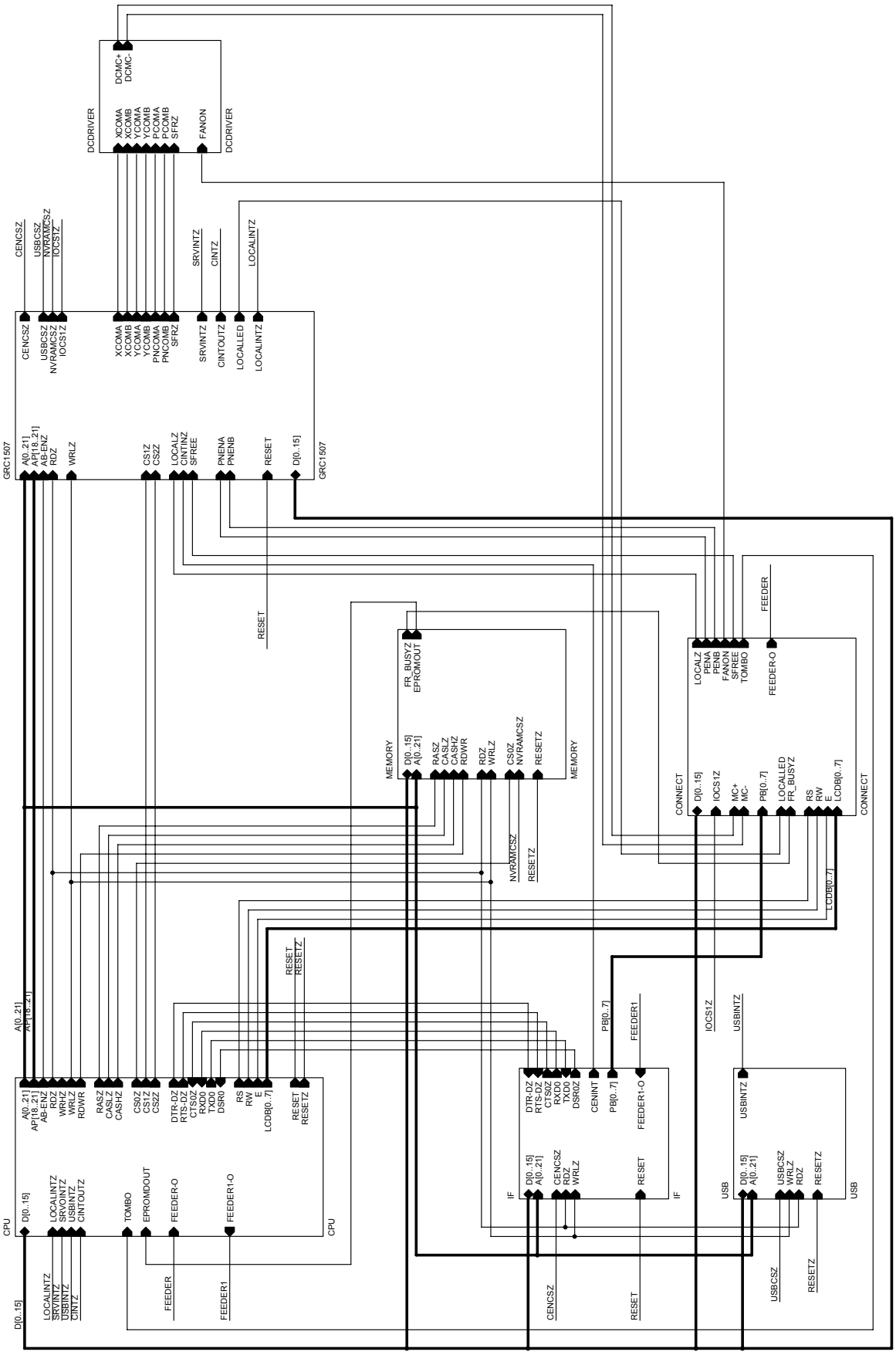


11.1.3 Block Diagram for CE3000-40

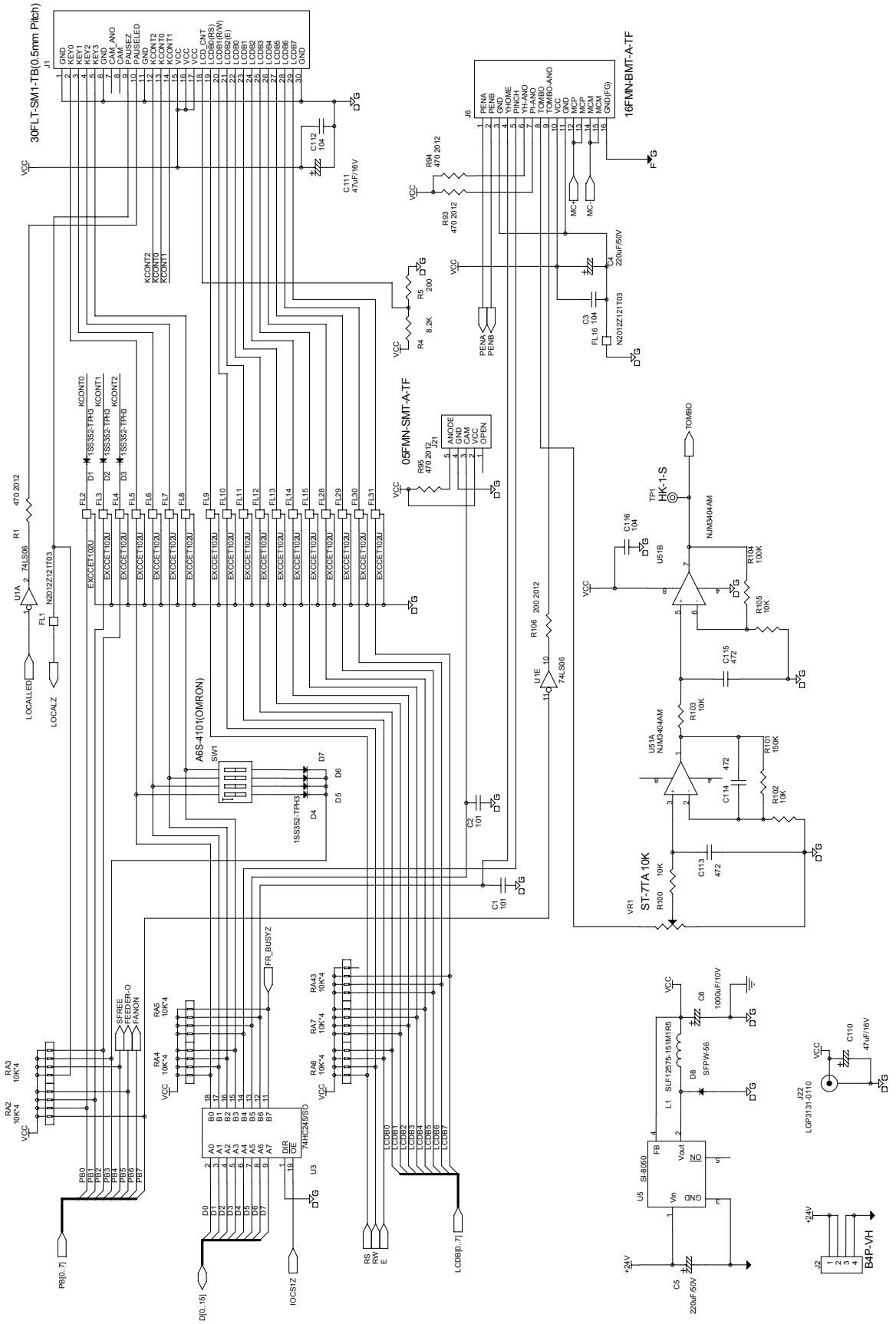


11.2 Circuit Diagrams

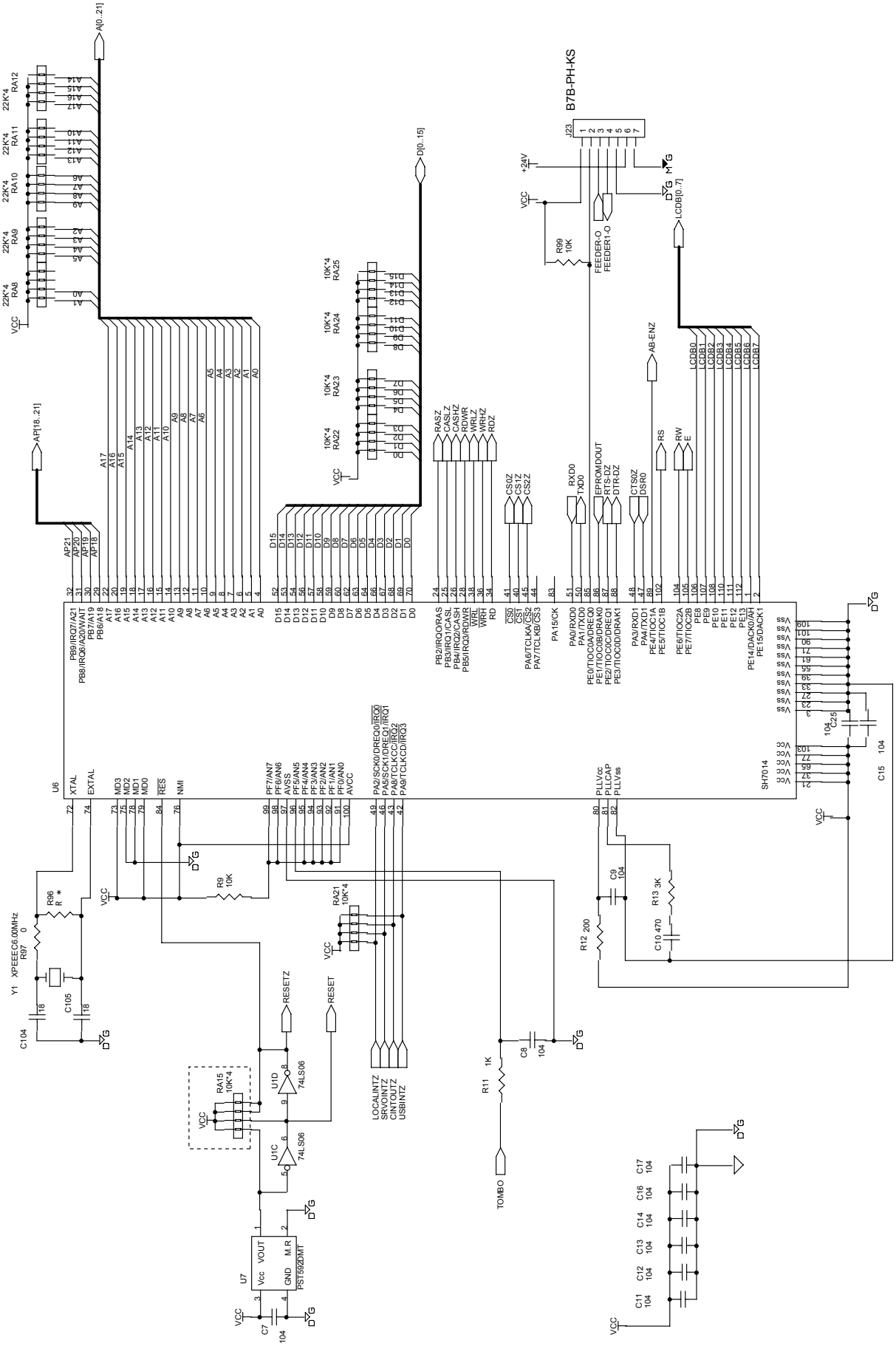
11.2.1 Main Board Top Section (PR270101A)



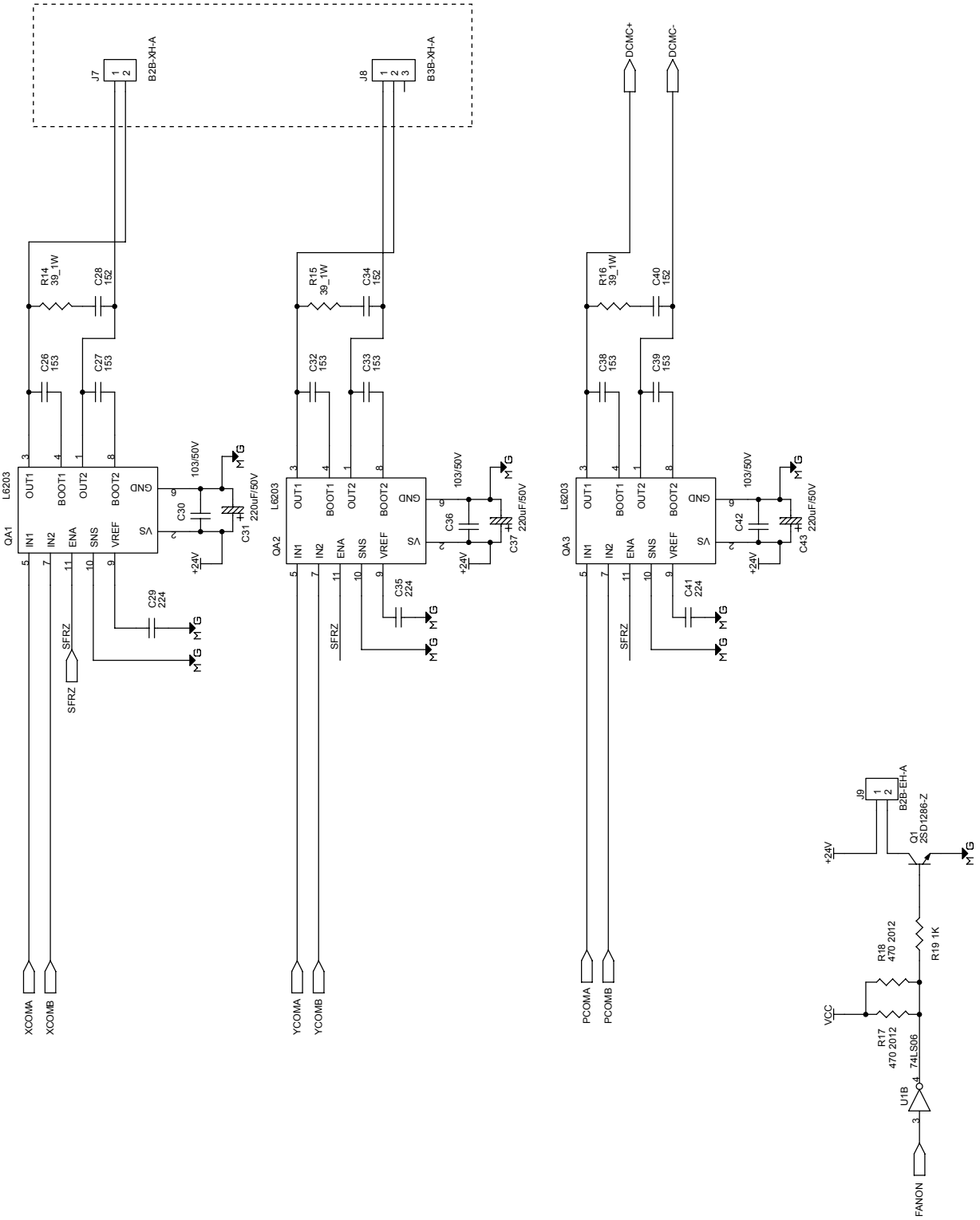
11.2.2 Main Board Connector Block Section (PR270101A)



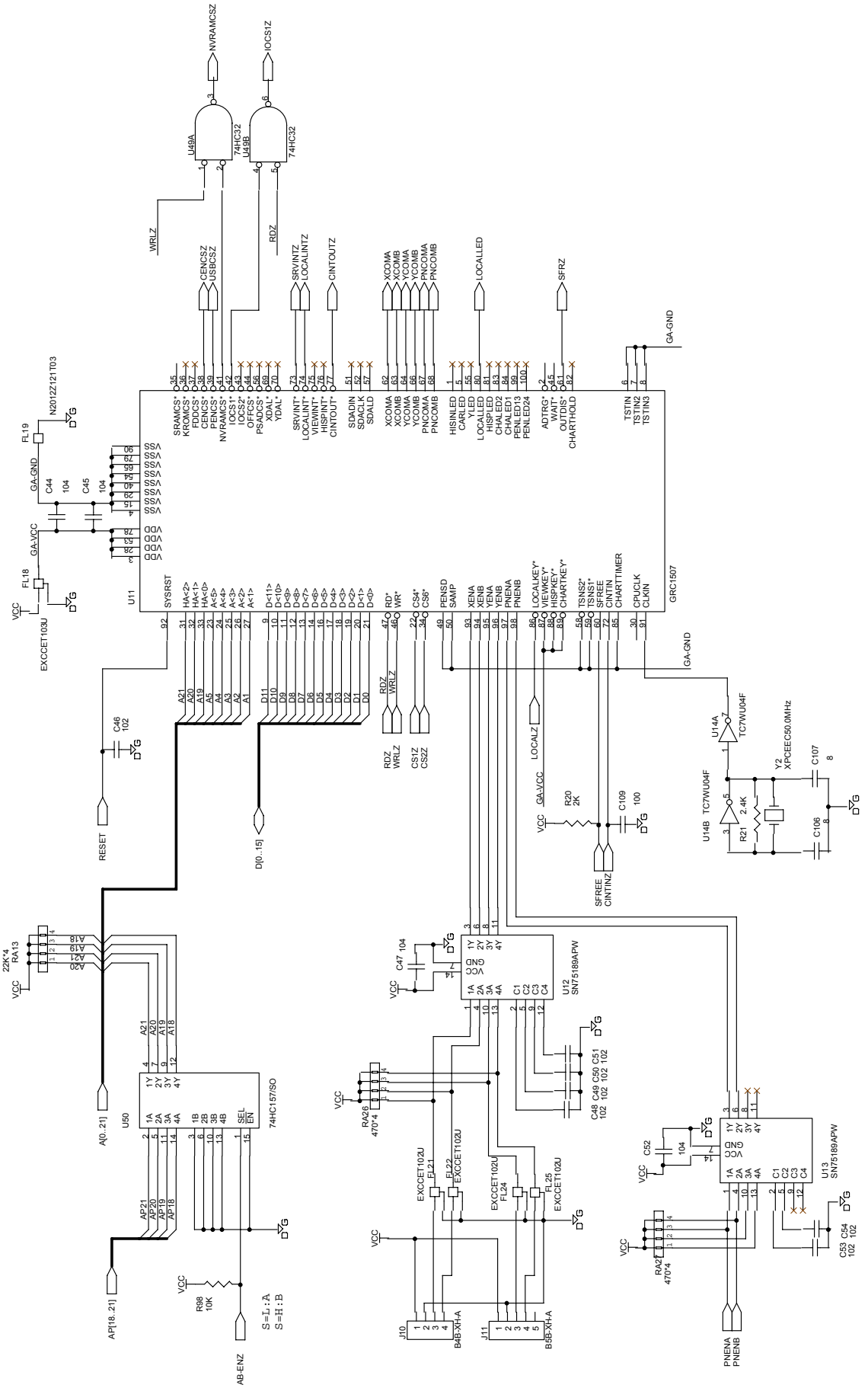
11.2.3 Main Board CPU Block Section (PR270101A)



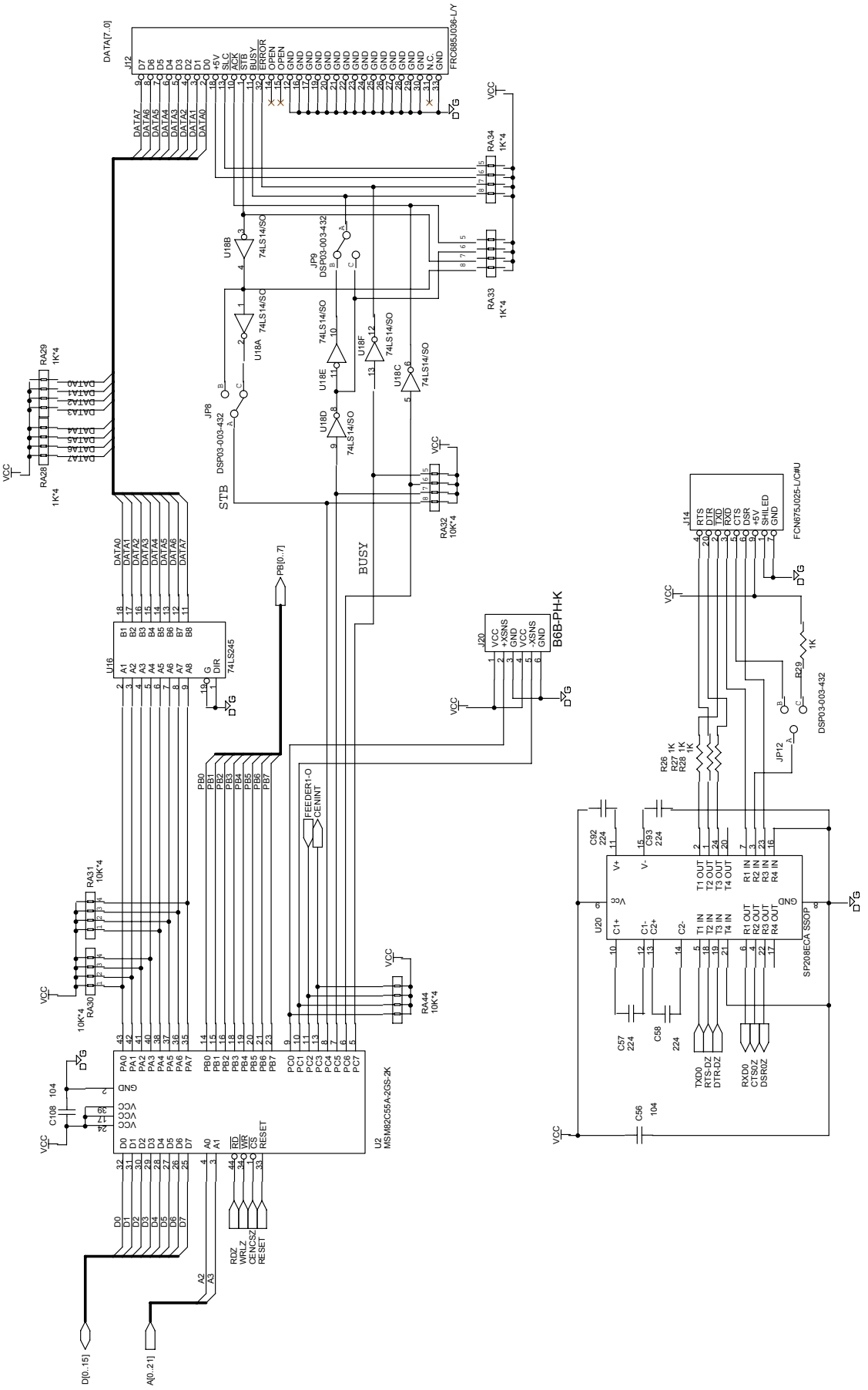
11.2.4 Main Board Motor Drive Section (PR270101A)



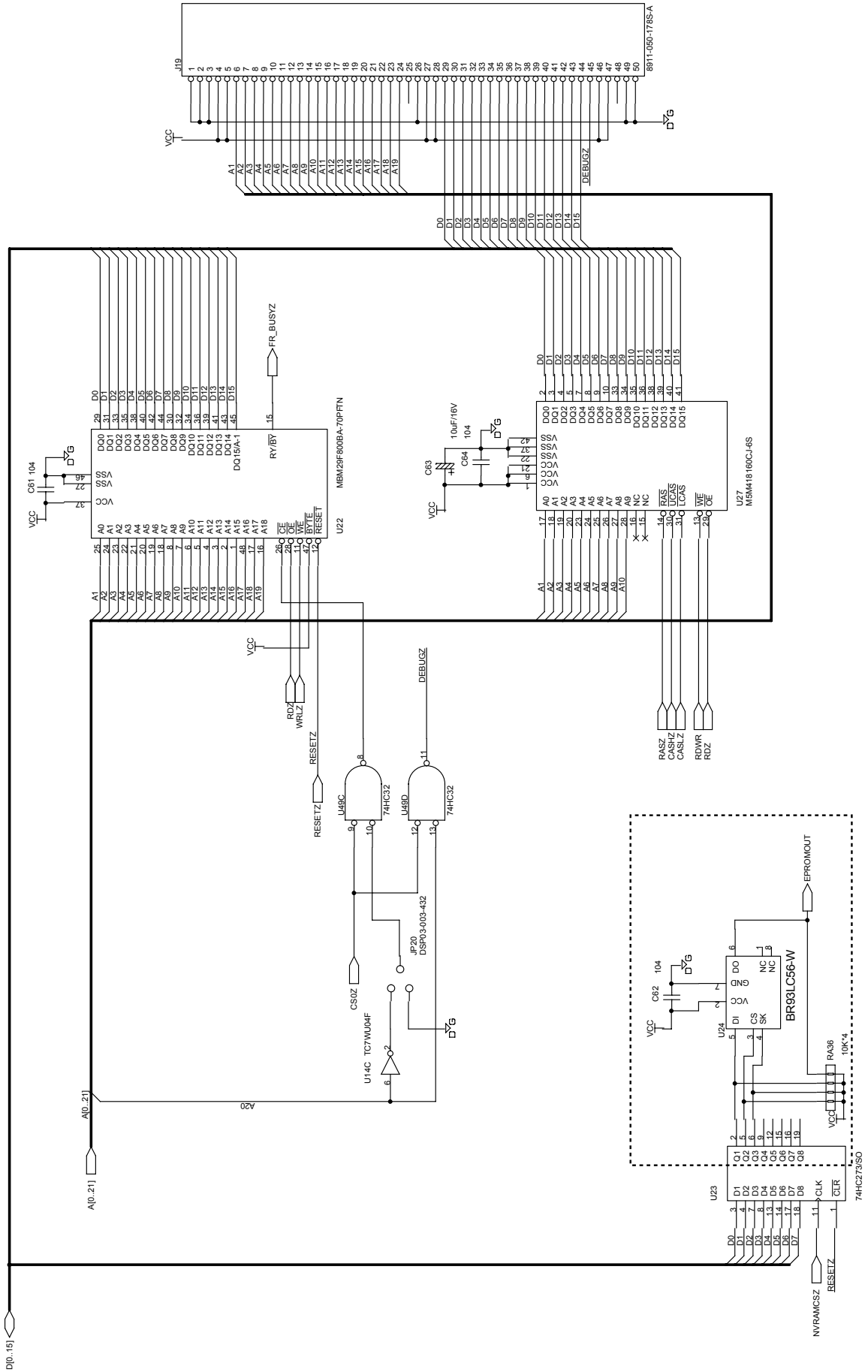
11.2.5 Main Board GRC 1507 Section (PR270101A)



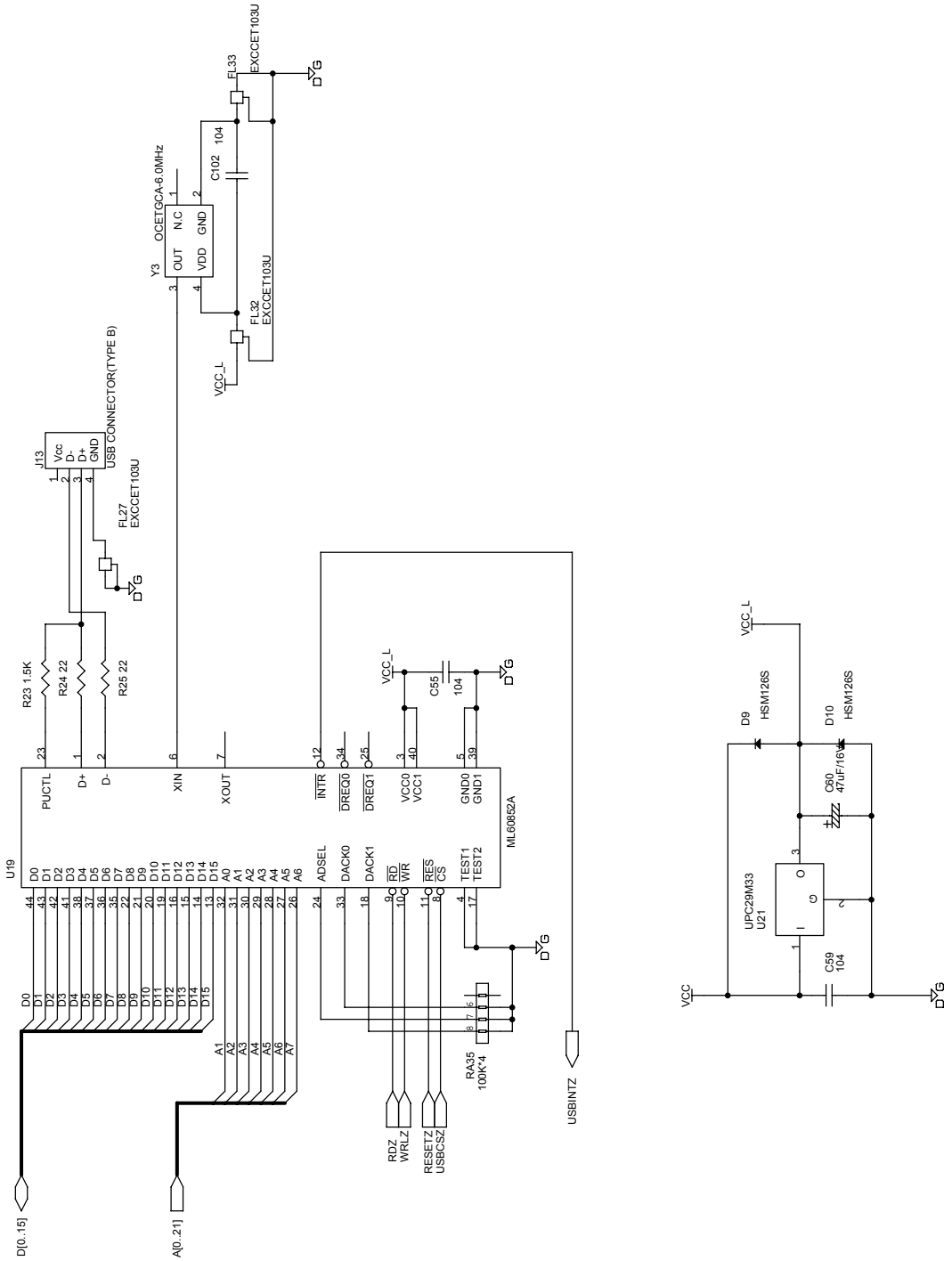
11.2.6 Main Board Interface Section (PR270101A)



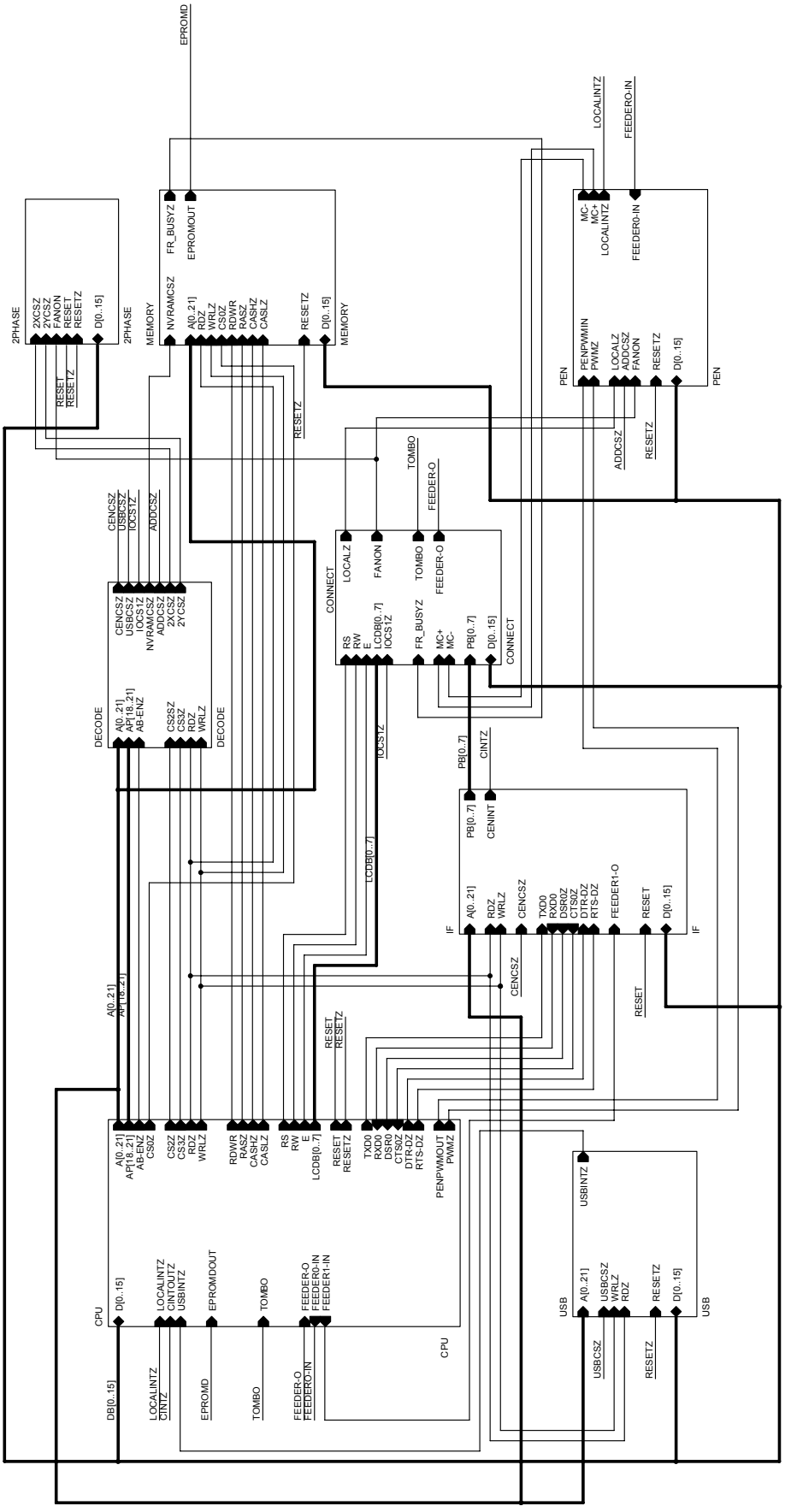
11.2.7 Main Board Memory Block Section (PR270101A)



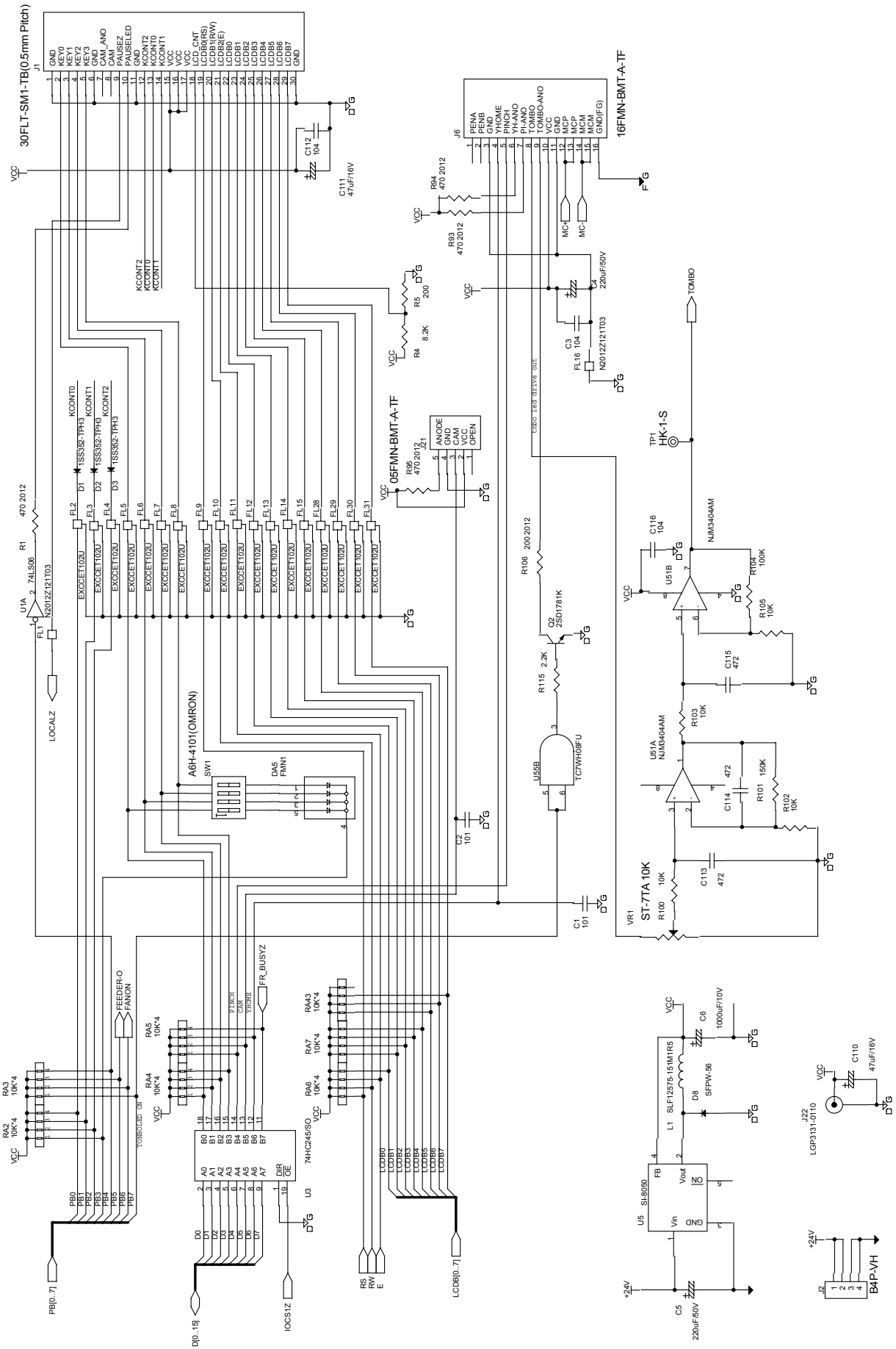
11.2.8 Main Board USB Block Section (PR270101A)



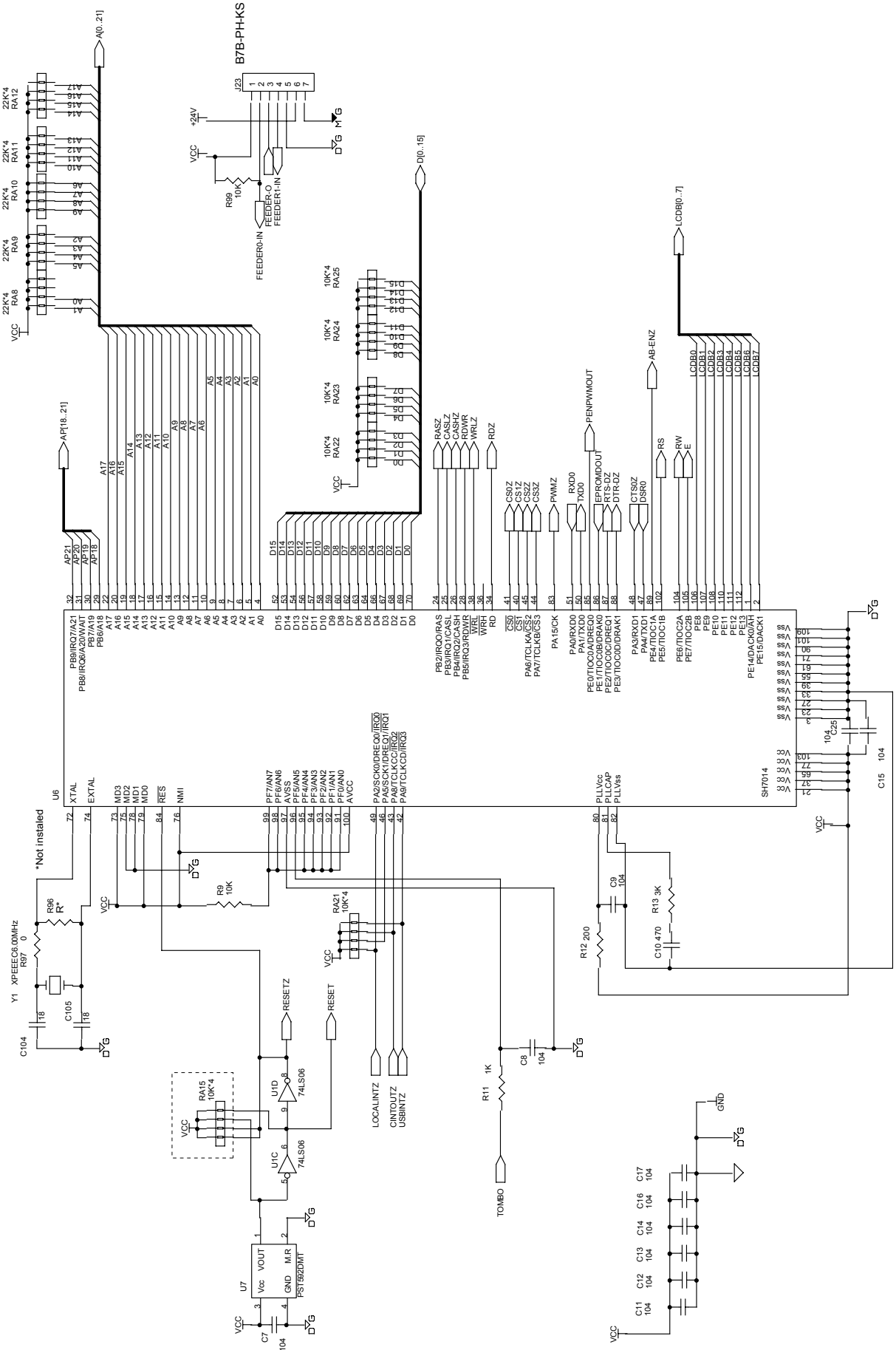
11.2.9 Main Board Top Section (PR270102A)



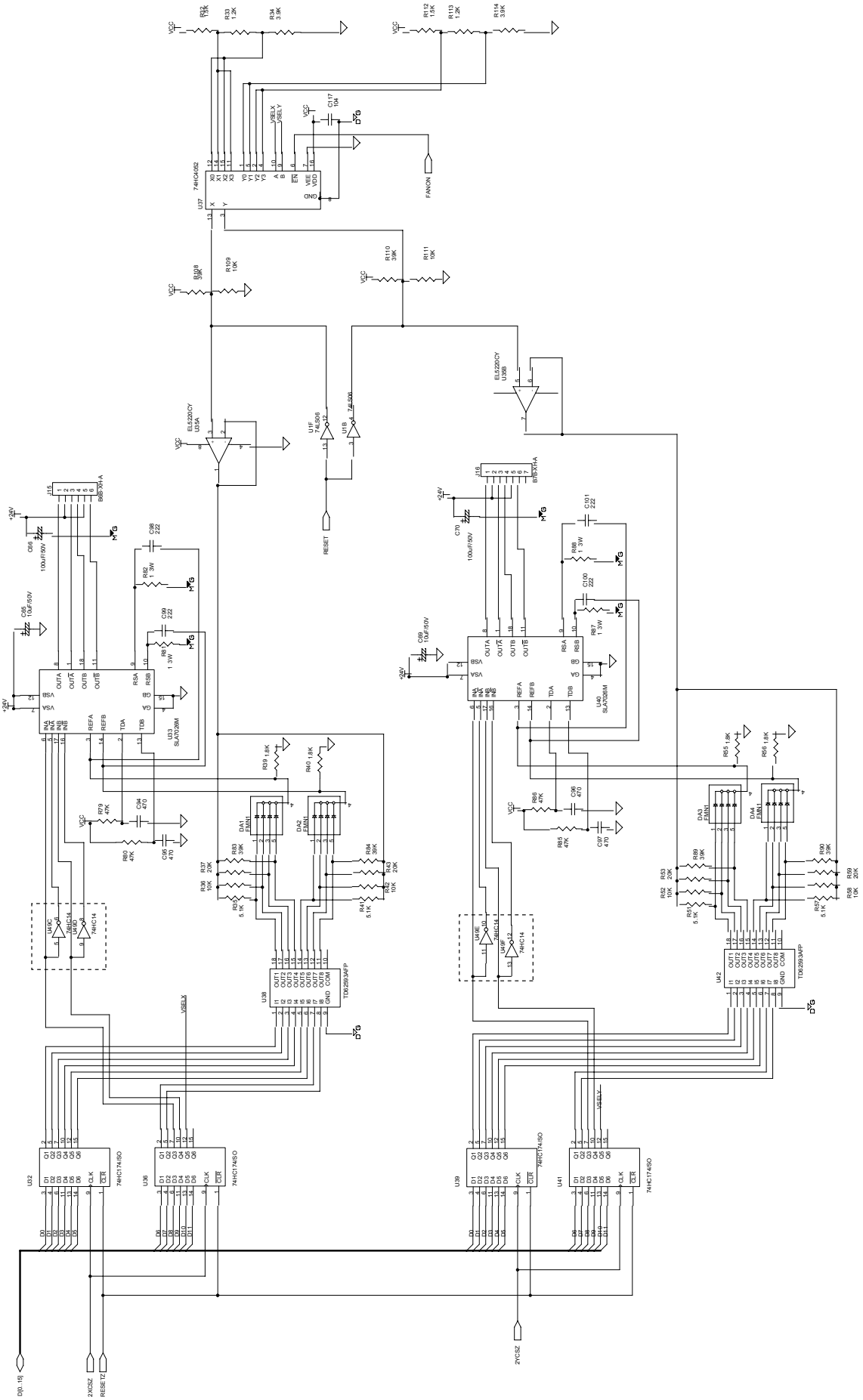
11.2.10 Main Board Connector Block Section (PR270102A)



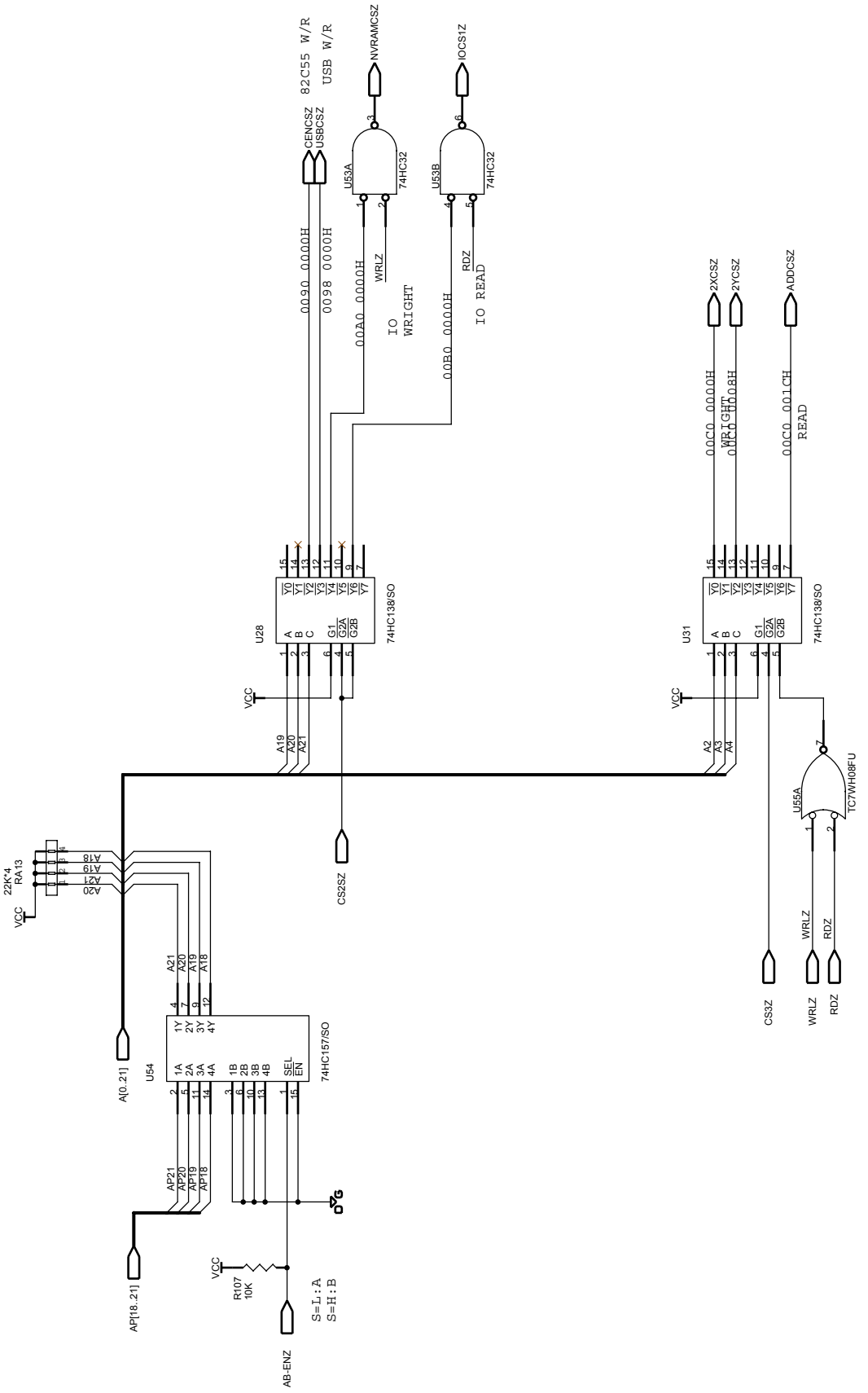
11.2.11 Main Board CPU Block Section (PR270102A)



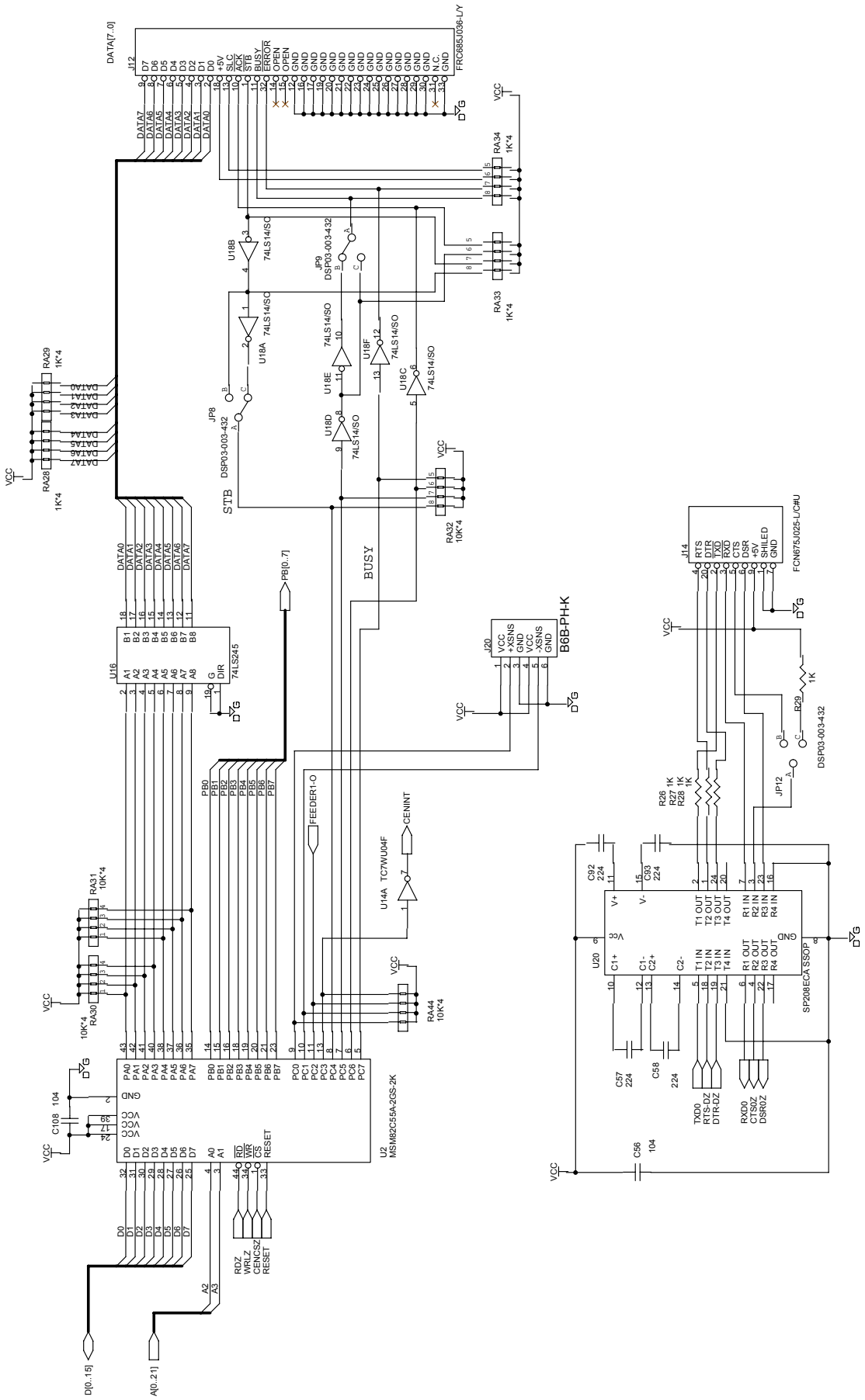
11.2.12 Main Board 2-Phase Motor Drive Section (PR270102A)



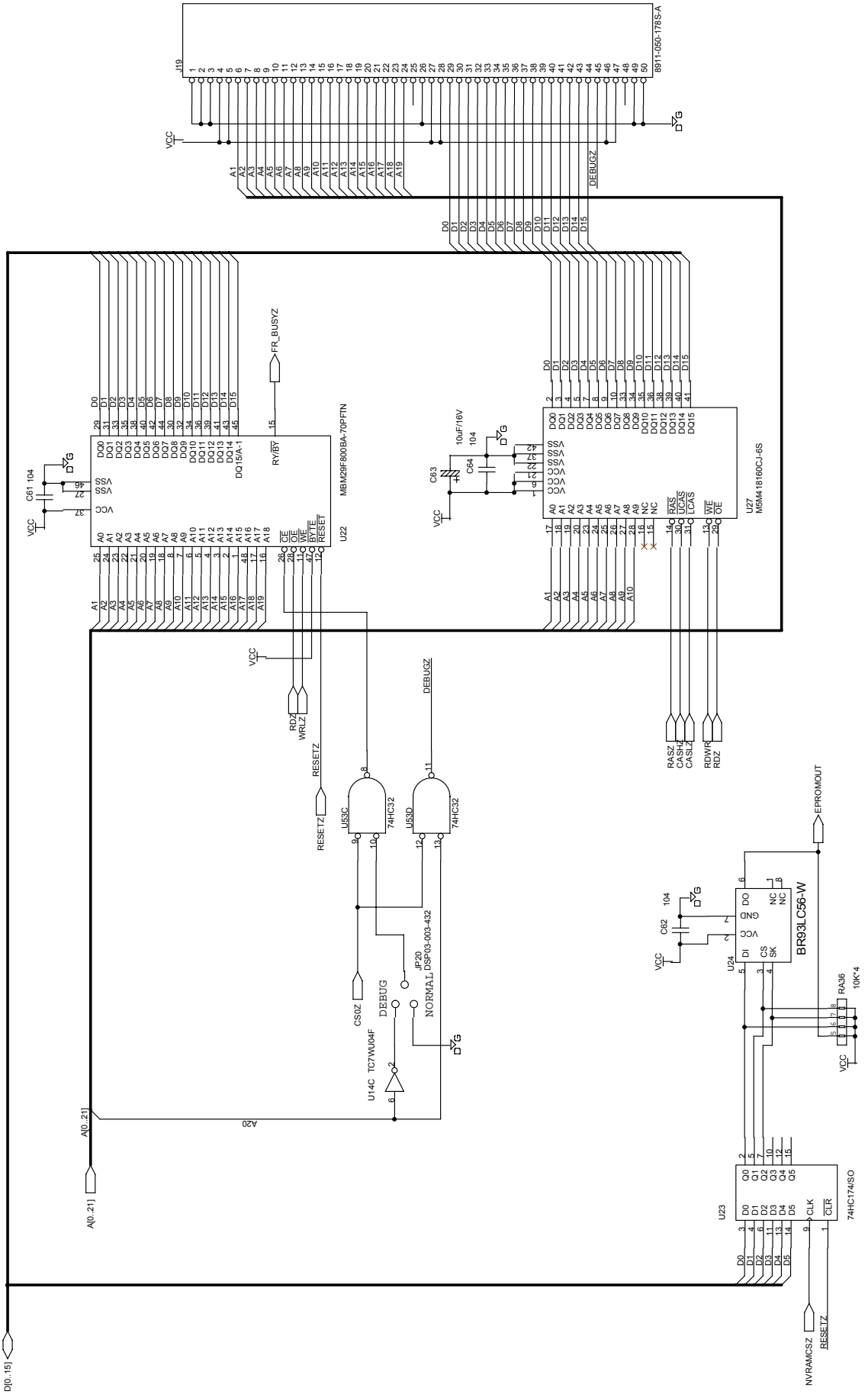
11.2.13 Main Board Decoding Block Section (PR270102A)



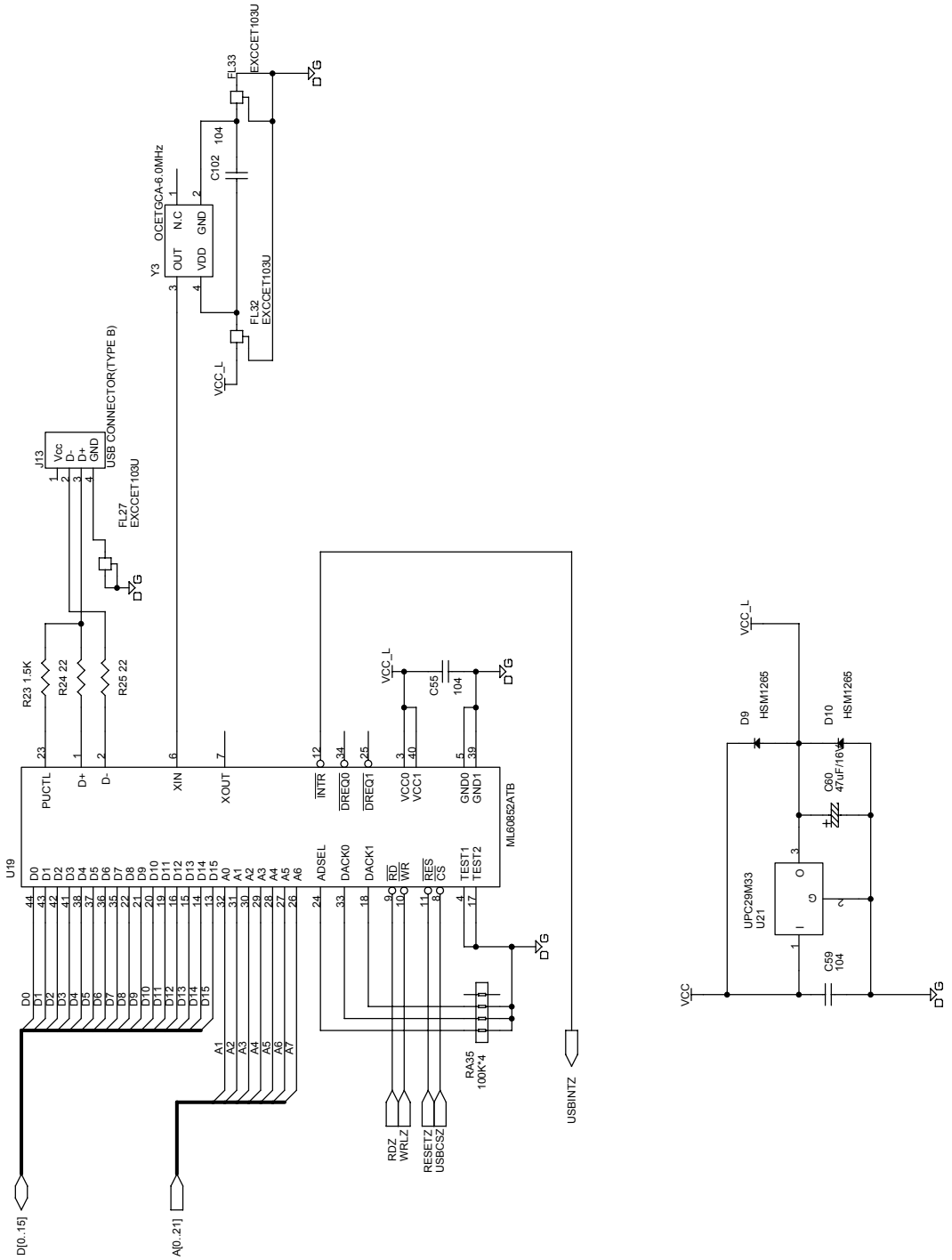
11.2.14 Main Board Interface Section (PR270102A)



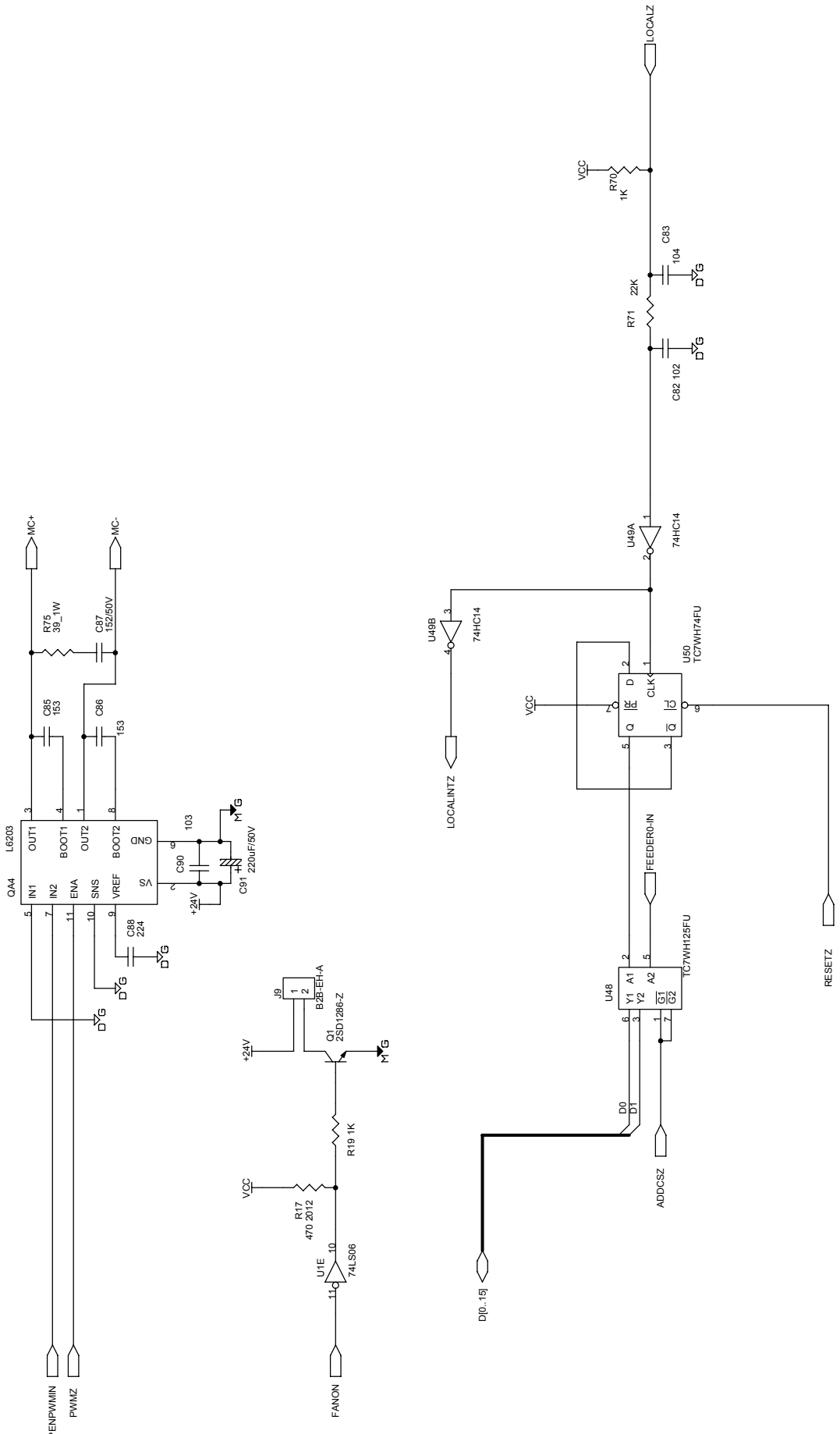
11.2.15 Main Board Memory Block Section (PR270102A)



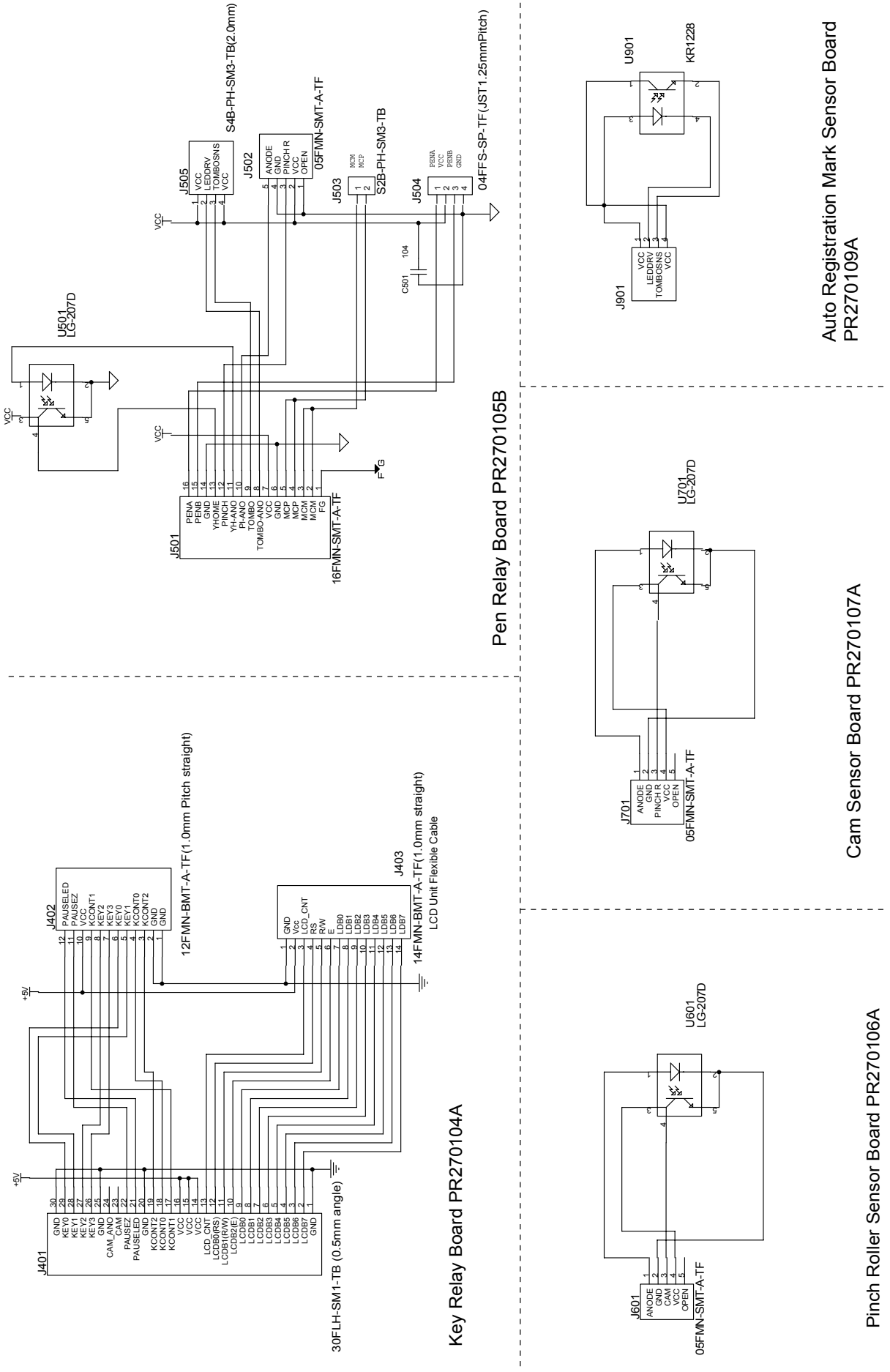
11.2.16 Main Board USB Block Section (PR270102A)



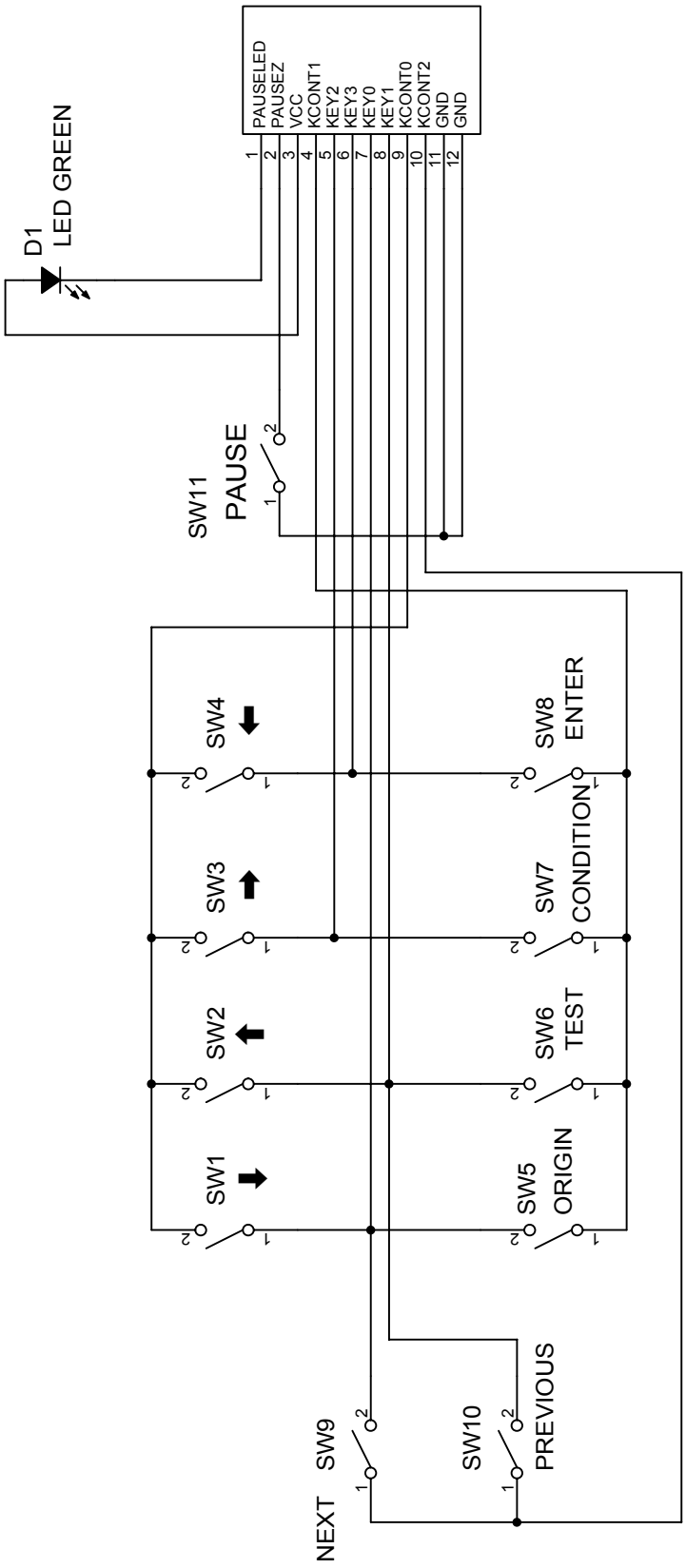
11.2.17 Main Board Pen Drive Section (PR270102A)



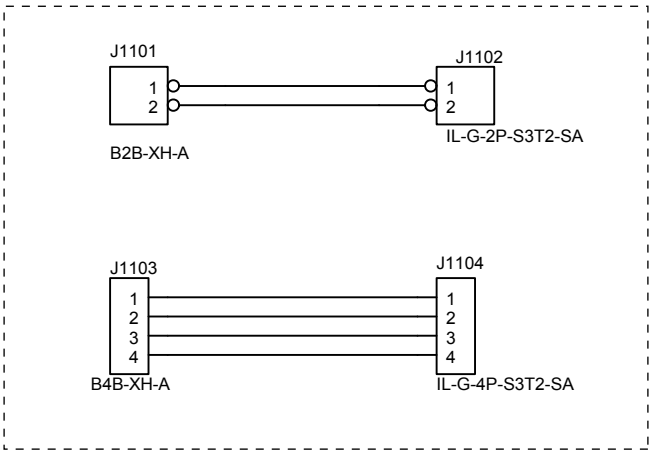
11.2.18 Relay and Sensor Board Section



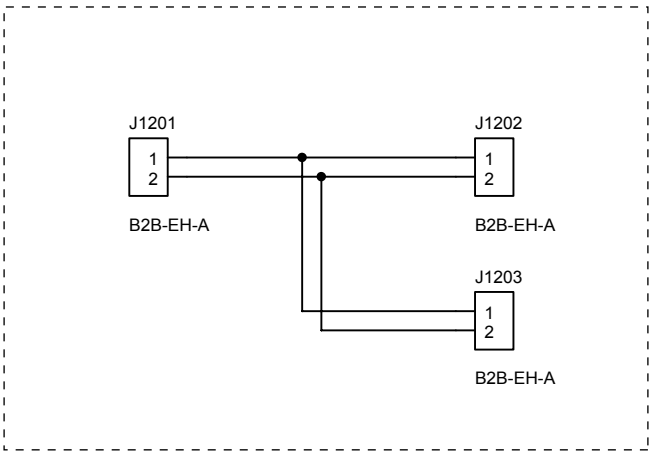
11.2.19 Control Panel Membrane Switch Panel Section



11.2.20 120-Relay Board Section

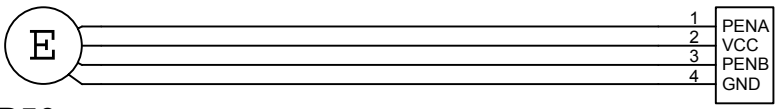


Fan Relay Board PR270111



Motor Relay Board PR270112

11.2.21 120-Pen Encoder Flexible Cable Section (FPC270101)



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